DENTAL LIBRARY

THE Journal OF THE

AMERICAN DENTAL ASSOCIATION

MARCH 15, 1947 • VOLUME 34 • NUMBER 6

CONTENTS

Preservation of the Primary Teeth ..... *Ireland* 383
Intra-Oral Skin Graft ..... *Weiss* 389
Penicillin and the Sulfonamide Drugs ..... *Lovestedt* 396
Penicillin Lozenges in Gingival Diseases .... *Glickman* 406
Editorials
New Editor of The Journal 410
Topical Application of Fluorides 411
News of Dentistry 413
Research Commission 423
Committee on Legislation 425
Committee on Insurance 428
Current Literature 429
Army Dental Corps Separations 432
Navy Dental Corps Separations 436
Deaths 437
Directory 438
Announcements 440

ANNUAL MEETING
A. D. A.
AUGUST 4-8, 1947

● The first full scientific meeting of the Association since 1941 will be held August 4-8 in Boston. A complete program of scientific essays, clinics, exhibits and motion pictures will be developed.

● All housing arrangements will be made through the Housing Bureau of the Boston Chamber of Commerce. No reservations will be accepted before April 15.

● In the next issue of The Journal, April 1, a detailed statement of the housing program will be made. Coupons to be used for requesting reservations will be provided.

The Journal of the American Dental Association, Vol. 34, No. 6. Published by the American Dental Association, 222 E. Superior St., Chicago 11, Ill. Yearly subscription $7.00 for U. S. and possessions; $8.00 for foreign countries. Single copy forty cents. Entered as second-class matter, May 27, 1942, at the postoffice at Chicago, Ill., under the act of August 24, 1942. Published semimonthly. Copyright 1947 by the American Dental Association.

THE Journal OF THE
AMERICAN DENTAL ASSOCIATION

MARCH 15, 1947 • VOLUME 34 • NUMBER 6

PRESERVATION OF THE PRIMARY TEETH

Ralph L. Ireland,* M.S., D.D.S., Lincoln, Neb.

It is generally agreed that childhood is the most effective period in which to initiate a program of preventive dentistry. The treatment of dental defects early in life is the best possible assurance against the later occurrence of serious defects. The purpose of this paper is to discuss some of the technics which the dentist may find helpful in the preservation of the primary teeth.

Differences Between Primary and Permanent Teeth

Before attempting operative treatment for children, the dentist who is interested in his patient's welfare will acquire a knowledge of the anatomy and histology of the primary teeth. This precaution will aid in his planning of treatment and improve his operative procedures. Examination of a posterior bitewing roentgenogram of the mixed dentition will reveal that (1) the pulps of the deciduous teeth are larger in comparison to the size of the crowns than those of the permanent teeth, (2) the pulpal horns of the deciduous molars are closer to the outer surface of the tooth than is commonly the case in the permanent teeth, (3) the mesial pulpal horns extend for a greater distance into the crowns of the deciduous molars than do the distal pulpal horns, (4) the pulp chambers of the mandibular molars are larger than those of the maxillary molars and (5) the layers of enamel and dentin are not as thick in the deciduous teeth as in the permanent teeth.

It will also be helpful to the dentist who works for children to know that (1) the form of the pulp chambers of the deciduous teeth resembles the form of the crown, (2) there is generally a pulpal horn under each cusp, (3) there is no appreciable difference in the mineral content of the deciduous and permanent teeth and (4) the enamel rods in the gingival third of the primary teeth extend from the dentino-enamel junction occlusally or incisally.

Operative Technics

A working knowledge of the modified operative procedures necessary for the care of the primary teeth is essential. The cavity preparations which the dentist

Read at the 81st midwinter meeting of the Chicago Dental Society, Chicago, February 14, 1946.

*Professor of pedodontics, College of Dentistry, University of Nebraska.

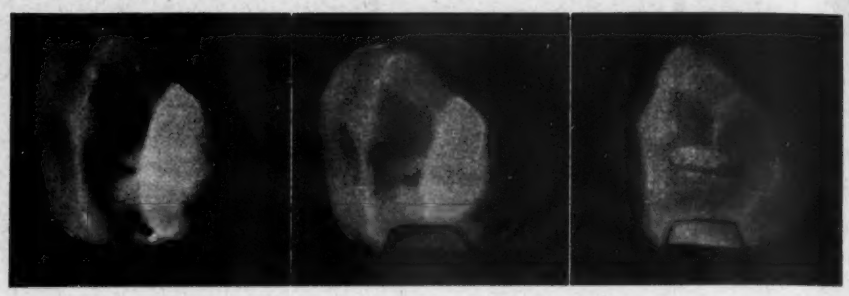

Fig. 1.—Left: Access is gained for the proximal preparation of the class 2 cavity by undermining the marginal ridge with a No. 34 inverted cone bur or a spade bur. Center: The cavity outline has been carried to self-cleansing margins on the buccal and lingual aspects of the tooth. Right: The first step in the occlusal preparation

uses for the father are not suitable for his young son or daughter but must be modified to conform to the morphology of the primary teeth.

The management of class 1 and 5 cavities in the primary teeth differs little from the management of those in the permanent teeth. However, the preparation of class 2 cavities in the primary teeth presents problems which require special consideration. Inadequate preparation and restoration of class 2 cavities are responsible for the premature loss of a large number of primary molars. As McBride[1] said, "Buckley's desensitizer and devitalizing agents are only amateur actors in the devitalizing field compared to the rôles of these three colossal, superheterodyne stars: 'faith' fillings, 'joint' fillings and cement restorations."

The most common errors in the preparation of class 2 cavities are (1) too narrow buccolingual preparations at the junction of the proximal and occlusal portions, (2) inadequate preparation of the occlusal step and (3) extreme tapering toward the buccal and the lingual aspect of the walls of the proximal preparation.

Incipient interproximal cavities in the deciduous molars frequently are found in pairs, one on the distal surface of the first molar and one on the mesial surface of the second molar. To conserve tooth structure and the dentist's time, these cavities may be managed by preparing a class 2 cavity in the first molar and a proximal spot in the second molar.

There are several methods for starting preparation of the proximal portion of the class 2 cavity. If the roentgenogram shows the marginal ridge to be sufficiently undermined, access may be gained by breaking down the marginal ridge with chisels. If the marginal ridge is firmly supported by dentin, a No. 34 inverted cone bur or a spade bur placed in the distal pit and tilted at a 45 degree angle may be used to undermine the marginal ridge so that it can be broken with chisels (Fig. 1, left). After access has been gained, a No. 557 fissure bur is used to extend the cavity outline toward the buccal and lingual aspects of the tooth (Fig. 1, center). The axial wall and the gingival floor also are established with this bur. Round burs (No. 2, 3 or 5) may be used to remove any remaining caries and to round the proximo-gingival angles. A u-shaped groove at the angle of the gingivo-axial line will provide added retention for the silver amalgam filling. The u-shaped groove is made with a No. ½ round bur.

1. McBride, W. C., You Who Operate for Children. *J.A.D.A.* 13:925 (July) 1944.

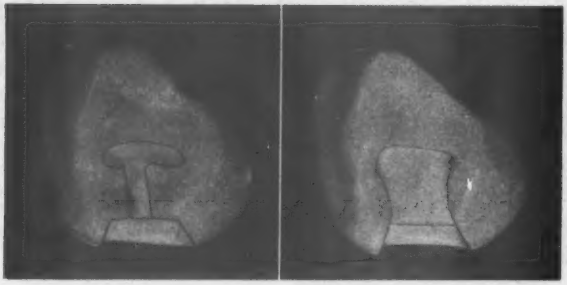

Fig. 2.—Left: Second step in the occlusal preparation of the class 2 cavity. Right: Occlusal view of the completed preparation

The occlusal step is started by entering the central pit with a No. 34 inverted cone bur or a spade bur. A cut is made from the central pit toward the buccal and lingual surfaces of the tooth (Fig. 1, right). A cut also is made from the central pit to the proximal preparation (Fig. 2, left). These cuts are enlarged with a No. 557 fissure bur or a moist straight stone and the occlusal outline of the cavity preparation is established. Whenever possible the cavity outline of the occlusal portion should meet the cavity outline of the proximal portion at approximately a 90 degree angle. The occlusal step and dovetail are finished with a No. 37 or 39 inverted cone bur (Fig. 2, right).

The proximal spot cavity is then prepared in the second molar and filled with silver amalgam, and temporary stopping is placed in the class 2 prepared cavity. At the next appointment, the proximal spot filling is polished and the class 2 cavity is filled with silver amalgam.

If it is not advisable to use a proximal spot preparation in the second molar or if the interproximal cavities in the two teeth have progressed until the marginal ridges have been destroyed, a class 2 preparation is indicated for each of the molars (Fig. 3). Considerable time may be saved if the two preparations are made in one operation, going back and forth between the two teeth with the same instrument.

Beginning cavities in the proximal surfaces of the anterior primary teeth may be treated by preparing class 3 cavities and filling them with silver amalgam. Because silicate cement has not proved successful at the College of Dentistry, University of Nebraska, silver amalgam is now being used as a filling material for small class 3 cavities in these teeth. When the caries is more extensive and the incisal angle is involved, the proximal surface may be disked until the undermined enamel is removed and a solid incisal angle has been established. The remaining carious dentin is removed and a cavity is prepared similar to a class 3 preparation (Fig. 4). Ammoniacal silver nitrate and eugenol may be applied to any remaining hard discolored dentin, and the cavity filled with silver amalgam.

Cavities in the distal surface of cuspids can be managed successfully by placing a silver amalgam filling in a distolingual cavity. This procedure assures the maintenance of contact between the cuspids and the primary first molars.

A satisfactory matrix band for the deciduous teeth can be made from stainless steel matrix material 0.002 inch (0.005 cm.) thick. A strip of the material, approximately 0.18 inch (0.45 cm.) wide, is cut and placed around the tooth. With the thumb or index finger holding the band material on the lingual surface of the tooth, the two ends are pulled to-

Fig. 3.—Approximating class 2 silver amalgam restorations in primary molars. After completing the two cavity preparations (one operation), one cavity was filled with silver amalgam and the other with a temporary stopping. At a subsequent appointment the remaining cavity was filled with silver amalgam

gether on the buccal aspect of the tooth with flat-nosed pliers. The band is removed and the two right angle bends are brought together and held by orthodontic soldering pliers. Any portion of the band material that extends more than 0.25 inch (0.64 cm.) beyond the right angle bend is removed. A small amount of lead solder flux is applied to the inside of the band where the right angle bends are joined, and the seam is soldered with lead solder. Only a small amount of lead solder is necessary and the heat from an alcohol lamp is preferable to that of a Bunsen burner or orthodontic blowpipe. The

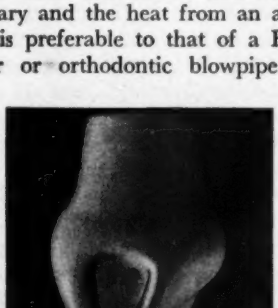

Fig. 4.—Class 3 cavity preparation used in primary anterior teeth after restoration of a solid incisal angle. To secure additional retention, a lingual dovetail is employed wherever possible

excess material is removed, the solder joint is smoothed and the band is ready to be placed on the tooth for recontouring. The band should fit the tooth tightly and should not extend more than 0.125 inch (0.32 cm.) beyond the contemplated height of the marginal ridge. This matrix also may be used for distolingual cavities in cuspids. By cutting a half-moon portion from the lingual side of the band, the silver amalgam can be placed and condensed in the cavity from the lingual aspect. If necessary, this type of matrix band can be left around the tooth for several days. When it is time to remove the matrix band, the operator can open the soldered joint by cutting it with a knife-edged stone or by prying it apart with a spoon excavator (Fig. 5).

A wedge, inserted at the gingival aspect, will prevent an overhang of silver amalgam. Any wedge which the operator is accustomed to using may be employed.

My associates and I have, for some time, been discontented with the instruments we were using to condense silver amalgam in cavities in the primary teeth. Because these instruments were designed for use in the permanent teeth, they were not completely satisfactory for use in the deciduous teeth. After experimenting with various instruments, we designed four condensing points to fit cavities of average size. These points enable the operator to remove the excess mercury more efficiently while condensing the silver amalgam into the cavity.

The condensing points are designated as 1p, 2p, 3p and 4p (Fig. 6). The No. 1p point is used to condense silver amalgam in the proximal portion of class 2 cavities. The No. 2p point is used for the occlusal portion, the No. 3p point for the proximal portion of distolingual cavities in cuspids, and the No. 4p point for the lingual portion and for class 1 and 5 cavities. The points are used in a double end demountable type handle (Fig. 7).

The strength and durability of the finished silver amalgam filling is influenced greatly by its mercury content. After the cavity has been overfilled, the quality of the restoration will be improved if the silver amalgam is condensed further by use of an automatic or pneumatic condenser.

Management of Deep Carious Regions

Dentists need to be reminded that the pulp tissue of the primary teeth responds to the irritation of caries, chemicals and thermal changes in the same way as does the pulp tissue of the permanent teeth. It has been shown that the pulp tissue of the primary teeth forms secondary (adventitious) dentin when stimulated by these irritants, and that the primary teeth deposit secondary dentin in response to abrasion and as a result of aging.[2,3] This type of secondary dentin has been called physiologic secondary dentin. The recent reports of the successful capping of exposed pulps in the primary teeth is additional evidence of the recuperative power of this tissue.[4-6] Although further experimental work on pulp capping should be carried out, these studies at least indicate that the pulp tissue of the primary teeth does not easily lose its vitality.

The vitality of many deciduous teeth in which caries has penetrated close to the pulp can be maintained with a little assistance from the dentist. The following procedure and treatment are suggested:

1. Make a roentgenogram of the tooth.

2. If there is a history of toothache, determine (a) whether pain occurs at night or when the child is lying down, (b) whether pain is present momentarily after eating and (c) whether hot or cold foods or drinks or cold air causes pain. The prognosis is bad if (a) the tooth hurts at night or when the child is lying down, (b) hot foods or drinks cause pain or (c) the tooth is sore to percussion. The prognosis is good if (a) the tooth hurts momentarily after eating, (b) cold drinks or air causes pain and (c) the tooth is not sore to percussion.

3. Vitality tests may be helpful in borderline cases.

4. Treatment should be as follows:

a. Isolate the tooth by means of cotton rolls or the rubber dam.

b. Remove all soft carious dentin with

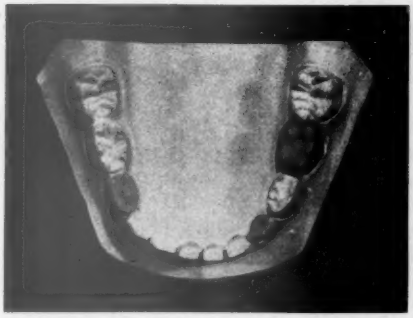

Fig. 5.—Matrix band in place on the primary left second molar. A matrix material should be selected that can be soldered with lead solder

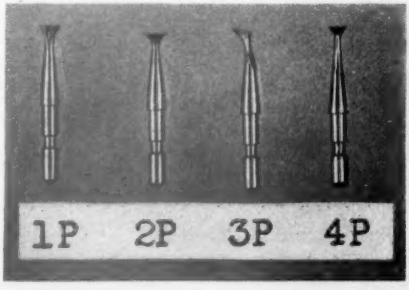

Fig. 6.—Condensing points designed for cavities in the primary teeth

2. Ireland, R. L., Secondary Dentin Formation in the Deciduous Teeth. *J.A.D.A.* 28:1626 (October) 1941.

3. Bevelander, Gerrit and Benzer, Sidney, Morphology and Incidence of Secondary Dentin in Human Teeth. *J.A.D.A.* 30:1075 (July) 1943.

4. Rosenstein, S. N., Pulp Capping in Deciduous Teeth: Report of a Ten Year Study. *J.A.D.A.* 29:1632 (September) 1942.

5. Esslick, K. A., Management of Pulp Exposure in the Mixed Dentition. *J.A.D.A.* 30:179 (February) 1943.

6. Restarski, J. S., Preserving Vitality of Pulps Exposed by Caries in Young Children. *Illinois D. J.* 9:2 (January) 1940.

Fig. 7.—Condensing points in handle

a large round bur. If exposure of the pulp results from this operation, capping or partial removal of the pulp may be employed. If the pulp is not exposed, the hard discolored dentin in the base of the cavity should not be disturbed.

c. Dry the cavity with warm air and apply ammoniacal silver nitrate to the discolored dentin. Allow the silver solution to remain in contact with the dentin for at least one minute (longer is better) before reducing it with eugenol. The applicators illustrated in Figure 8 are excellent for applying the two solutions.

d. Restore the cavity to the desired form with a zinc phosphate cement or zinc oxide and eugenol base and fill the cavity with a permanent filling material.

e. When caries has penetrated close to the pulp and the outcome is doubtful, remove the soft carious dentin, apply ammoniacal silver nitrate and eugenol to the discolored dentin and place a temporary filling of zinc oxide and eugenol in the cavity for several months. In some cases the zinc oxide and eugenol paste may be placed in the cavity for several days or a week before the ammoniacal silver nitrate and eugenol are applied. When roentgenograms and vitality tests indicate there is a reasonable chance that the pulp will survive, a permanent restoration may be placed over the zinc oxide and eugenol base.

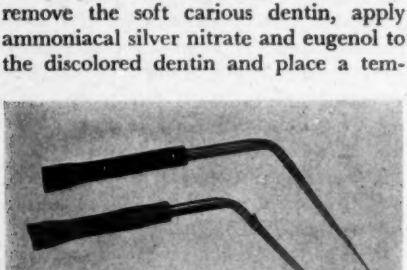

Fig. 8.—Applicators for applying ammoniacal silver nitrate and eugenol

Summary

Before operative treatment for children is attempted, the dentist should know the important anatomic and histologic differences between the primary and permanent teeth.

One of the essential requirements of the dentist who works for children is a knowledge of the modified operative procedures necessary for the care of the primary teeth.

Class 2 silver amalgam fillings will not fracture as frequently and will remain in the teeth longer if the cavity outline of the occlusal portion meets the cavity outline of the proximal portion at approximately a 90 degree angle and an adequate occlusal step is prepared.

A matrix should be employed when compound cavities are restored with silver amalgam. A wedge at the gingival aspect will prevent an overhang of silver amalgam.

Deep carious regions in the primary teeth can be managed successfully by removing all of the soft carious dentin, applying ammoniacal silver nitrate and eugenol and restoring the cavity to form with a suitable base.—*305 Andrews Hall.*

THE INTRA-ORAL SKIN GRAFT AS AN AID TO DENTURE CONSTRUCTION

Louis Ralph Weiss,* D.D.S., Evansville, Ind.

ARTIFICIAL dentures have been discussed by both the laity and the profession, perhaps more than any other aspect of dentistry. Fortunate is the individual who after extraction of the natural teeth has sufficient osseous structure for support of attaching muscles and soft tissue, so that a denture will not interfere with their function or be displaced by them.

Unsatisfactory cases confront all dentists. The person generally has had unsatisfactory artificial dentures over a long period of time, perhaps a series of different dentures. Oftentimes through no fault of the exodontist or prosthodontist, the crest of the ridge has been greatly absorbed, leaving nothing but a flat surface on which to build a denture. An abnormal interjaw relationship may exist and requires additional foundation to produce stability. The normal facial contour, such as the receding chin or the receding upper lip (so-called dish face), either of traumatic or congenital origin, is often a problem. A repaired cleft palate or harelip offers difficulty in constructing a satisfactory appliance from an esthetic and functional standpoint.

Unfortunate conditions such as these are corrected by surgical procedures of various kinds, innumerable impression technics and engineering principles. Many patients are condemned to unsatisfactory dentures or appliances with the comment that everything possible has been done. However, conditions often may be favorably altered by the creation of pockets or the extension of sulci intraorally in the buccal, lingual or labial areas, or by the obliteration of interfering muscle attachments, and lining these extensions with split thickness skin grafts so that they may be maintained. Denture flanges may be extended into these skin-lined areas, thus procuring added foundation for esthetic and functional results. The creation of these extensions often means the difference between failure and success, without a radical surgical procedure.

What are the possibilities of the intra-oral skin graft, how much ridge extension can be accomplished through its use, and what kind of a base can be prepared for a denture? The answer is that extension may be produced as far as desired, for an extension pocket may be produced even so far as below the inferior border of the mandible. As long as vital structures are not destroyed and function is not impaired, the cavity desired can be made and maintained when lined with a skin graft. Undercuts or pockets may be developed as a means of aiding in retention of the denture.

The use of skin grafts in connection with the construction of dentures may seem to the average dentist beyond the realm or scope of dentistry, but if their use will produce satisfactory results when all else has failed, the operation is justifiable. The mention of skin grafts recalls at once the cosmetic surgeon, but the greatest purpose of skin grafting is not primarily for beautiful effects but to pro-

*Formerly Major (DC) AUS, Wakeman General Hospital, Camp Atterbury, Ind.

duce functional results, cosmetics being of much less consequence.

There are a number of types of skin grafts; they are named for the layers of skin they possess or for the method by which they are taken or used. In extension of alveolar sulci, for example, a split thickness graft, that is, only a split layer of skin, is used. It is composed of the epithelial or top layer and a small portion of the corium layer. The purpose of this graft is to line and maintain the area which will be formed as a result of incision and to make an early covering of the incised tissue. If the incised area were not lined with a skin graft, it would close by granulation, with an increase in scarring and a resulting cord of fibrous tissue. Instead of extension of the sulcus, there actually would be obliteration, in spite of careful separate suturing of the mucous membrane of the severed parts and maintaining pressure on the area with a denture during the healing process. The amount and power of scar contraction in some facial injuries is appalling. When a scar is incised for repair of a defect, there is often much greater loss of tissue than was expected. The purpose of lining the extended sulcus with a skin graft is to prevent contraction, and by lining it with normal skin it is converted into a practically closed wound.

Successful skin grafting depends on a healthy recipient area, free from scar and infection, careful technic in cutting and handling the graft, firm even pressure to prevent accumulation of blood and serum between the graft and its bed, and immobilization until sufficient circulation has been established. On smooth and flat surfaces, such as the extremities, pressure is easy to obtain. In natural or artificially produced cavities and on surfaces which have no regular form, such as in the mouth, no type of dressing is practical, and grafts must be held by a mold formed from an impression of the cavity. The mold should be of a material which becomes pliable within a suitable temperature range to prevent damage to tissue, and which when cooled to body temperature, becomes rigid and retains its form. There must be no chemical or physical change in the mold during the period of use, since its collapse or disintegration will cause failure.

Historical Material

Esser,[1] in 1917, recommended "stent" for supporting an epithelial or split thickness graft. This material was used by English dentists for taking impressions and corresponds with our dental impression compound. With this material Esser was able to introduce a mold of the de-

1. Esser, J. F.: Studies in Plastic Surgery of the Face. *Ann. Surg.* 65:297 (March) 1917.

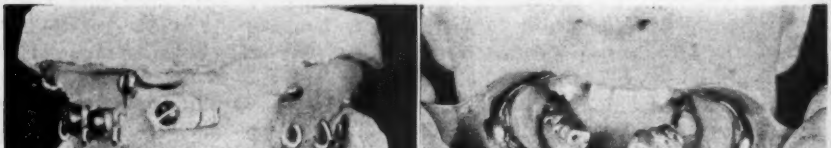

Fig. 1.—Left: Edentulous acrylic splint. Eyes for attaching cheek wires to headcap for support. Screw attachments for supporting graft on dental compound mold. Right: Cast silver splints with female connections may be used with bar for fracture treatment, and with supporting cage for skin graft. Use of this type of attachment makes the same splint serve a dual purpose

sired shape and size covered with an epithelial layer of skin. He employed this type of material as a graft support in reconstruction of the obliterated alveolar sulcus. Through an extra-oral incision beneath the lower border of the chin, Esser inserted the skin-covered mold of modeling compound without opening into the oral cavity. The incision was closed and the mold was held in place until a "take" had been assured. A sulcus was produced when the mold was removed through an incision in the muco-labial fold the entire length of the newly created skin-lined cavity. A denture with a labial flange completely filling the sulcus was inserted. This method was described as "epithelial inlay grafting," from the type of support of the graft. It is often called the "stent graft."

Horsley,[2] Waldron[3] and Pickerill,[4] in treating the obliterated alveolar sulcus after gunshot wounds, introduced modeling compound or stent molds covered with epithelial or split thickness grafts directly into the oral cavity to freshly incised surfaces. They found that a take with these thin grafts could be obtained even in the presence of oral secretions. This method often is called "epithelial onlay or outlay grafting." The mold was supported by a rigid abutment, either intra-oral or extra-oral.

Present Day Technic

From the work of these men our present day procedures for extension of alveolar sulci to increase the usable ridge area for stabilizing artificial dentures has developed.

If teeth are present, various forms of attachment for support of the mold may be devised. Although the teeth are few in number and even of questionable stability, they may be used for the supporting abutments, as long as there is no pain or possibility of extracting the teeth by use of the appliance. The use of the appliance extends over a short period of time, the minimum being fourteen to twenty-one days. One tooth often will serve as a splint for another. The use of elastoplast, adhesive plaster and elastic bandage on the external skin also will aid in retention of the mold and hold the soft tissue in contact with the graft. Although the splint is held primarily by the teeth, its support is not entirely from that source. Dental splints may be made from

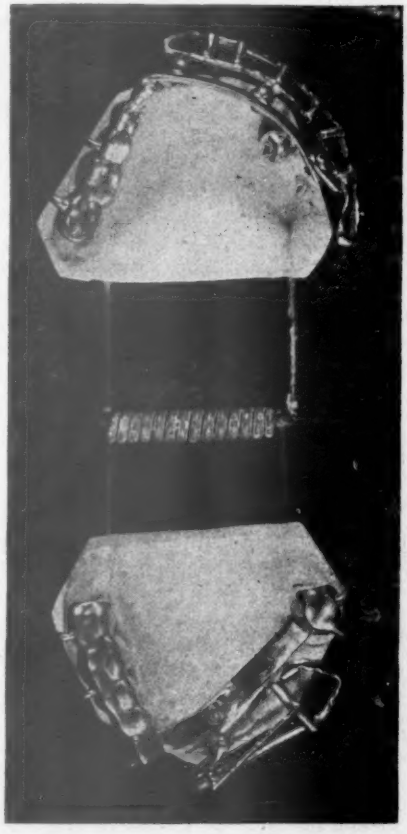

Fig. 2.—Same as Figure 1, right

2. Horsley, J. S.: Plastic Operations for Acquired Deformities of the Face. *J.A.M.A.* 66:411 (February 5) 1916.

3. Waldron, C. W., cited by Gillies, H. D.: *Plastic Surgery of the Face.* London: Oxford University Press, 1920.

4. Pickerill, H. P.: The Tube-Flap and the Tube Graft in Facial Surgery. *Brit. J. Surg.* 9:321, 1921-1922.

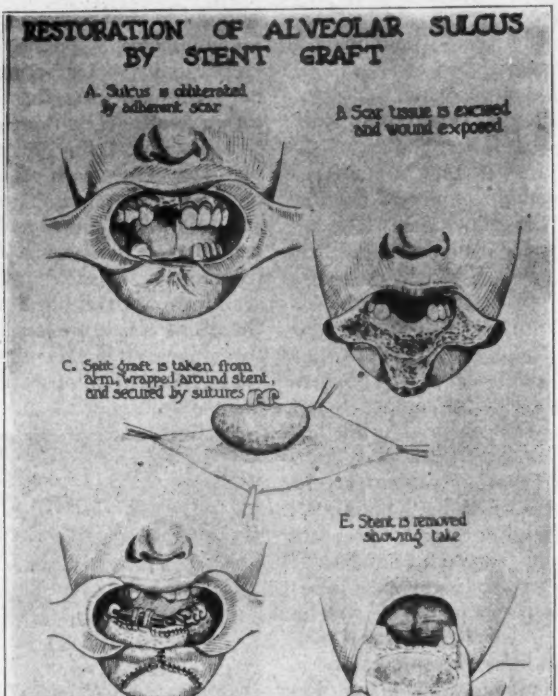
RESTORATION OF ALVEOLAR SULCUS BY STENT GRAFT
A. Sulcus is obliterated by adherent scar
B. Scar tissue is excised and wound exposed
C. Split graft is taken from arm, wrapped around stent, and secured by sutures
E. Stent is removed showing take
D. Wound is closed and stent is secured in place

Figure 3

stock crowns, with a supporting basket for the compound affixed by screws, tags or telescoping square or round tubing. Cast crowns, single or multiple, may be made from gold or silver alloy, with the compound supporting basket of brass or precious metal (Figs. 1 and 2).

In the case of a patient with an edentulous mandible or maxilla, a mold of proper size is constructed of dental compound or of acrylic on a model made from an impression of the jaw. The incision is made in the muco-buccal or lingual fold, at the junction of the muco-periosteal tissue, and the skin-covered mold is placed in the extension. It is held in place by sutures passed from the edges of one wound margin to another, across and through the top surface of the skin on the mold, the sutures being under enough tension to hold the mold but not enough to tear. This anchoring may be supplemented with additional stabilization by passing stainless steel wires through the perforations in the mold and around the mandible or through the alveolar process of the maxilla and tying them on top of the mold.

Although the greater number of patients at the Wakeman General Hospital have had the labio-alveolar and bucco-alveolar sulci of the mandible obliterated by gunshot wounds of the jaw with accompanying fracture, the procedure

described can be applied to any case in which ridge extension is desired. Figure 3 shows a patient who after a gunshot wound of the face and fracture of the jaw had obliteration of the labio-alveolar sulcus with the lower lip attached to the crest of the ridge. Since there were remaining teeth, an interdental splint for support of the mold was used. As mentioned previously, this technic may be modified in the edentulous mouth by inserting the mold into the extended sulcus and holding it there by suturing the edges of the incision for extension.

This case also demonstrates the cooperation of the Army maxillofacial unit. Previous to the beginning of any treatment of a maxillofacial nature, the dental surgeon and the plastic surgeon formulate a plan of procedure and treatment. In this case it was decided that extension of the sulcus was necessary for a properly functioning denture.

Impressions for study models and for construction of the splints are taken. On the study models the extent of the sulcus extension that is necessary is determined, and a splint is constructed. These splints are of the cast cap type, 90 per cent silver and 10 per cent copper, with a supporting bar of suitable size and shape, so constructed that dental compound may be attached firmly to it. The splint is cemented in place twenty-four hours previous to the operation, so that the cement will be completely set and the pressure exerted on the mold support will not displace the splint. Preparation of the impressions, study models and splint and determination of the depth of the sulcus are undertaken by the dental department.

The preoperative orders, which are given by either the dental surgeon or the plastic surgeon, are that the patient is to receive no breakfast, 1½ grains of pentobarbital sodium one and a half hours before operation, and ¼ grain of morphine with 1/150 grain of scopolamine one-half hour before operation.

Just previous to operation, a bilateral mandibular block is produced by the use of 2 per cent procaine hydrochloride with 1:50,000 epinephrine. Infiltration should not be made directly in the area of the graft, to avoid ballooning and distortion of the surrounding tissue as well as direct ischemia from the epinephrine.

Fig. 4.—Try-in of cast silver splint to check size and shape of supporting cage to be used in skin grafting for sulcus extension

The patient is prepared and draped in the usual manner. The donor area, from which the skin is to be taken, generally the thigh, arm or abdomen, is shaved and prepared with 1 per cent iodine and draped. The skin area, which must be healthy, free from scar and not hair-bearing, must be accessible and lend itself to the type of technic used, whether dermatome or razor. The skin to be used as the graft is outlined in a square by the plastic surgeon and infiltrated with 1 per cent procaine hydrochloride by use of a long 21 gage skin needle directed horizontally just underneath the skin.

While this is being accomplished, the dental surgeon makes the incision, creating the desired extension in the mucobuccal fold, in conformance to the area outlined on the study model. The incision is made carefully with a straight scalpel just above the periosteum of the mandible so that there will be a thin layer of soft tissue to act as a cushion for the graft. A better supply of blood is maintained by staying in soft tissue, although in all probability the graft

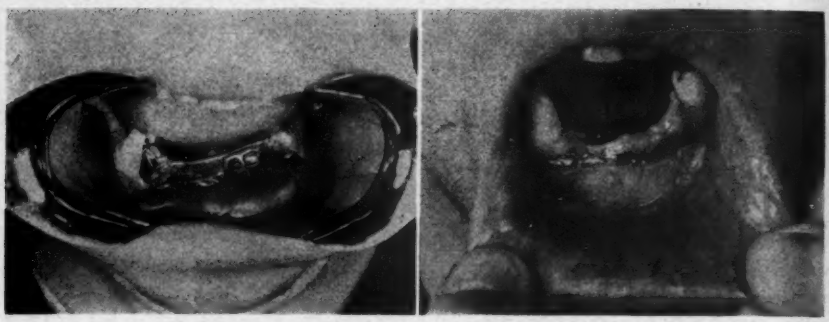

Fig. 5.—Left: Compound mold or stent after being in position for three weeks. Note that the skin over the surface that was not in contact with the tissue has sloughed. Right: Graft after removal of stent or mold, with resultant sulcus

would live directly in contact with the periosteum.

After the incision, the stent support is attached by screws. Dental compound (any kind), which previously has been sterilized in alcohol, is heated in a sterile pan in the electric compound heater, pressed around the wire mold support or cage into the sulcus extension and cooled with a sterile cold wet sponge. After cooling, the support with the attached compound impression of the created sulcus is removed from the splint and any deficiencies in the mold are filled with flame-heated compound. The mold is carried to the mouth for a try-in, to see whether it has good adaption to the created cavity. Absolute contact at every point is important, since otherwise sloughing of the graft will occur. The result will be a spotted graft, since the graft will remain white and the granulation tissue will be pink. After the try-in, the mold is removed, dried and washed in ether (Fig. 4).

While the dental surgeon is making the incision and preparing the mold in the extension, the plastic surgeon takes the split thickness skin graft of suitable size to cover the mold. The graft is held taut by a hemostat in each corner to prevent shrinkage caused by the elastic fibers. The mold is painted with a glue similar in composition to rubber cement to hold the skin against the mold. The glue-covered mold is placed in the center of the thin sheet of skin against the outer surface, and the skin is brought up over the mold, thus leaving the raw surface of the skin in contact with the raw area of the extended sulcus. The skin is attached to the mold, one surgeon holding the metal support and the other suturing the skin around the mold with silk. The graft is sutured in such a way that the mold is completely enclosed in skin. The mold is then inserted into the sulcus extension and screwed to the supporting bar or splint. Elastic adhesive is used to hold the lower lip against the mold and an elastic bandage is applied so that added traction will hold the lip against the mold. The purpose in this is to keep the raw surface of the graft in contact with the raw surface of the extension by immobilization of the soft tissue.

Postoperative Care

After operation, the patient is put to bed. Sterile fluids are given for three days. Morphine, grain 1/6, is administered whenever needed for pain. After three days a soft diet is permitted, and the patient is advised to use a saline mouth wash for ten days. After ten days the adhesive bandages are removed and the mold is irrigated with a 6 per cent

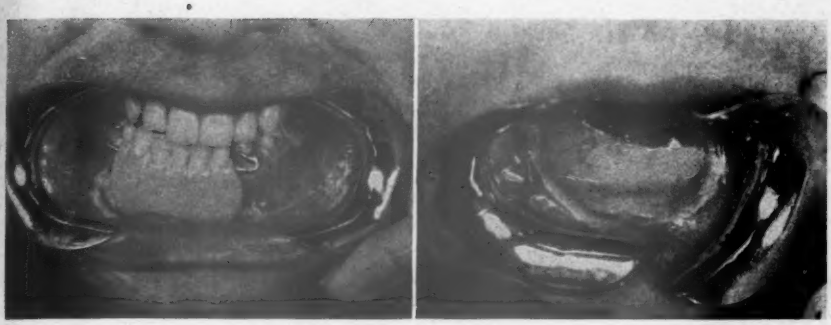

Fig. 6.—Left: Labial pocket and sulcus extension produced by the use of a split thickness graft, with denture in position. Right: Growth of hair sometimes occurs on split thickness grafts

aqueous solution of sodium bicarbonate. The skin on top of the mold not in contact with raw tissue has become white and necrotic during this time and sloughs off, exposing the dental compound on its top surface (Fig. 5). The mold is removed after twenty-one days (Fig. 5). Immediately after removal of the splint an impression is taken. The splint is replaced, and after completion of the denture it is again removed and the denture is inserted (Fig. 6). If the mold is not replaced at once, marked contracture will occur in a short time. Even an hour without the appliance will cause considerable contraction. The patient should be warned to remove the denture only for cleaning. After the appliance has been in the mouth for approximately six months, contracture will be at a minimum, and the sulcus will retain itself.

Results

Skin transferred from one area to another always remains of the same type, although it modifies itself to surrounding conditions; that is, skin from the abdomen, arm or thigh retains its original color and appearance regardless of where it may be placed. Areas of skin containing hair follicles may produce hair after transplantation, even in the mouth (Fig. 6). The blood and nerve supply of the graft gradually simulates itself to that of adjacent tissue; however, grafted skin in the mouth, in comparison with normal mucous membrane, seems to be somewhat tougher and more resistant and stands pressure better under the stress of dentures.

Although there have been variations in the degree of take and the evenness of the graft with the use of the technic described, there have been no failures. A spotted graft serves the purpose, but a whitish-grey graft is preferable.

Summary

The possibilities of the intra-oral skin graft should be considered in an attempt to replace the natural denture with a satisfactory artificial substitute. Many patients are condemned to unsatisfactory dentures without consideration of all remedial possibilities. The use of an intra-oral skin graft in sulcus extension and in relieving muscle and soft tissue attachments that interfere with function of the denture often can produce a satisfactory foundation when all other procedures have failed. Desired esthetic results can be accomplished through the extension and creation of pockets, compensating with the denture.—*615 Hulman Building.*

THE USE OF PENICILLIN AND THE SULFONAMIDE DRUGS IN DENTISTRY

Stanley A. Lovestedt,* D.D.S., Rochester, Minn.

When a dentist thinks of the sulfonamide drugs and the wonder drug, penicillin, he may ask the questions: In what way have these agents changed the practice of dentistry? Is any dental operation now possible because these drugs are available? What applications may be made of these therapeutic agents?

It may be surprising to realize that dental operations are probably no more extensive now than they were before the sulfonamides and penicillin were discovered. The principles of dental surgery that applied before these agents were known still apply. The experience and judgment of the dental surgeon are still important factors. Improvement is also necessary in the treatment of pathologic conditions of the root canal. In periodontia little actual aid is derived from the use of these drugs; however, gingival diseases have been treated with both sulfonamide compounds and penicillin with favorable results. Treatment of dental diseases with these drugs has not yet been standardized. They have definite limitations as to indications, application and efficacy. An awareness of the limitations of these drugs makes them more valuable adjuncts to the practice of dentistry. For greatest value in general dentistry a therapeutic agent should be stable, free of toxic effects and safe to use in an office practice.

Sulfonamides and penicillin are effective in the treatment of most infections of the oral cavity because the common pathogens are gram-positive. Proper diagnosis should be based on an adequate dental and general history and a knowledge of the patient's physical condition which may be provided by the patient's physician. When the nature of the condition is known it may be necessary to use one or both of these chemotherapeutic agents either as a prophylactic measure or as treatment of the specific condition.

Because complex reactions occasionally follow the use of the sulfonamide drugs, consultation with the patient's physician is advisable if the drug of choice is to be used for systemic treatment. Hospitalization may be indicated. About five times as much penicillin is required to provide adequate levels in the blood when it is administered orally as when it is administered intramuscularly. When systemic treatment with penicillin is given, it may be necessary to hospitalize the patient to facilitate administration and to insure sterility of the solutions used.

I will describe briefly the use of the sulfonamide compounds. Penicillin and its uses will be described in more detail, and a study made at the Mayo Clinic will be referred to briefly.

Sulfonamide Compounds

Sulfanilamide, sulfapyridine, sulfathiazole, sulfadiazine and sulfamerazine have been developed in an effort to find a more effective and less toxic sulfonamide compound. Sulfadiazine proved to have advantages over the preceding three compounds. Sulfamerazine, a newer drug, is more soluble than sulfadiazine, is ab-

*Section on Dental Surgery, Mayo Clinic.

sorbed more rapidly and more completely from the gastro-intestinal tract and is excreted more slowly in the urine. Because of these characteristics, higher concentrations in the blood can be reached, and the high levels are maintained with less frequent administration than is possible with the other sulfonamide compounds. Sulfamerazine appears to be at least as effective as the other sulfonamides for infections susceptible to treatment with such compounds and to be no more toxic. No injury to the nervous system as the result of treatment with sulfamerazine has been reported to date.

Willius and Brown[1] have pointed out some of the serious and tragic manifestations of toxicity which may occur after the use of sulfonamide drugs. They listed the reactions of mild degree as "headache, tinnitus, nausea and vomiting, dizziness and anorexia." Those of more serious nature included "(1) drug fever, (2) skin rash, (3) leukopenia and granulocytopenia, (4) acute anemia, (5) jaundice and (6) oliguria or anuria resulting from obstruction of the urinary vessels by crystals of the acetylated sulfonamide compound, or from toxic renal injury and manifested early at times by hematuria or renal colic; of these reactions all except leukopenia and granulocytopenia can be detected by observation alone. Acute anemia may occur early but fatal granulocytopenia rarely occurs before the second week of treatment and both of these complications occur more frequently when sulfanilamide or sulfapyridine is administered than when some other of the sulfonamide compounds is used."

Toxic complications usually indicate discontinuing use of the drug and forcing of fluids because the drugs are eliminated chiefly in the urine. Observation of patients who are being treated with sulfonamide compounds should be directed by a physician.

The initial dose of sulfamerazine is 3 gm., and 1 gm. is given every eight hours thereafter. Administration of 5 gm. of sodium bicarbonate at the same eight hour intervals may prevent or reduce renal complications. The intake of fluid should be about 3,000 cc. and almost half of that amount (1,400 cc.) should be recovered as urinary output in each twenty-four hours. When sulfathiazole is the drug of choice, the initial dose is from 2 to 4 gm., and the subsequent dose is 1 gm. every four to six hours. Sodium bicarbonate can be given with the sulfathiazole. When a program of prophylaxis is indicated, it should be instituted a day or two before dental extractions and carried on for a similar period after operation.

The indiscriminate use of the sulfonamide drugs for minor infections is to be discouraged. Were a patient to develop a so-called sensitivity reaction after the use of a small amount of drug, subsequent use necessarily would be contraindicated for at least two years and possibly longer. If a blood culture were taken and an organism susceptible to treatment with these drugs were identified, treatment with sulfonamide drugs might logically be prescribed; to administer the drugs empirically may fail to effect the desired response.

That transient bacteriemia occurs after dental extraction is no longer questionable. Therefore, prophylactic use of chemotherapeutic agents is almost always a prerequisite to surgical intervention in cases in which there are cardiac defects which predispose the patient to valvular infection.

In subacute bacterial endocarditis, organisms of the Streptococcus viridans group are the chief causative organisms. Of these Streptococcus mitis most commonly is present. Streptococcus salivarius, Streptococcus faecalis and Streptococcus bovis also must be considered in bac-

1. Willius, F. A. and Brown, A. E., Prophylactic Use of Sulphonamide Compounds as It Concerns Subacute Bacterial Endocarditis (Streptococci Viridans) and Dental Extraction. *Canad. Dent. A. J.* 10:107 (March) 1944; *Coll. Papers, Mayo Clin. & Mayo Foundation.* 36:422, 1944.

teriemias which may follow dental surgical procedures.

When the physician and dentist work together for the good of the patient, subacute bacterial endocarditis may be recognized and proper precautions instituted. It must be borne in mind that an appreciable number of cases of subacute bacterial endocarditis occur after dental extraction. The value of the preoperative and postoperative administration of sulfonamide drugs in these cases cannot be determined definitely because control studies are not available in any single case, but any treatment that affords any protection whatsoever is indicated.

Sulfonamide compounds probably are used in dentistry most often as dressings after surgical procedures. Millhon, Austin, Stafne and Gardner[2] reported on removal of 1,309 impacted lower third molars in 1,052 cases. In 795 cases a single third molar was removed and in 257 cases both of the impacted lower third molars were removed. In a control series of 304 cases in which no postoperative dressing was placed in the socket wound, dry sockets occurred in 51 cases (16.8 per cent). In a series in which 397 impacted lower third molars were removed and 60 per cent sulfathiazole incorporated in a glycerin base was used as a postoperative dressing, dry socket developed in only 11 cases (2.8 per cent).

The authors acknowledged that the local use of sulfathiazole is of no value in the treatment of dry sockets once symptoms have developed. They also stated that the action of sulfathiazole alone does not prevent dry sockets and that the mechanical action of the sulfathiazole dressing may have been underemphasized.

Administration of sulfathiazole in dental surgery may be indicated after removal of cysts of the jaws. The powder may be insufflated sparingly over the surface of the wound. The powder may be used also after complete upper or lower alveolectomy as well as after removal of impacted upper teeth.

2. Millhon, J. A., Austin, L. T., Stafne, E. C. and Gardner, B. S., An Evaluation of the Sulfa Drug and Other Dressings in "Dry Socket" in Lower Third Molars. *J.A.D.A.* 30:1839 (December 1) 1943.

Penicillin

Free penicillin exists as an organic acid and reacts chemically to form various salts and esters. According to Herrell,[3] penicillin is unstable when treated with dilute acids, alkalies, primary alcohols, oxidizing agents and heavy metals and in solutions in which the pH is more than 7 or less than 5. The calcium and sodium salts of penicillin are most commonly used. Free penicillin is said to be soluble in water to the extent of 5 mg. per cubic centimeter.

The antibacterial action of penicillin is most pronounced against aerobic and anaerobic gram-positive organisms. Not all gram-positive organisms are inhibited by the action of penicillin. Although the action of penicillin is feeble against most gram-negative organisms, it does prove effective against some important ones.

The mode of action of penicillin is not yet known. It is bacteriostatic in many instances and under certain conditions may be bactericidal. Penicillin seems to be most effective when infecting organisms are in a state of active growth or multiplication. The action of penicillin is not inhibited by the presence of pus, products of the breakdown of tissue or para-aminobenzoic acid. Whole blood or serum does not reduce its action.

In reviewing the subject of penicillin, Fleming[4] pointed out that it was necessary for any antibacterial agent used *in vivo* to possess no, or at least low, cytotoxicity. Penicillin in antibacterial concentration does not interfere with leukocytic activity *in vitro* or with the growth and migration of lymphocytes, fibroblasts or macrophages.

3. Herrell, W. E., *Penicillin and Other Antibiotic Agents*. Philadelphia: W. B. Saunders Company, 1945, 348 pp.

4. Fleming, Alexander, Antiseptics Old and New. *Proc. Staff Meet., Mayo Clin.* 21:65 (February 20) 1946.

Penicillin is absorbed rapidly when it is administered by the intramuscular, intravenous or subcutaneous routes. When single intravenous injections are given, the concentration of penicillin in the blood reaches a peak early and falls rapidly thereafter. Amounts of penicillin adequate to inhibit growth and multiplication of organisms probably are not present in the blood as long as three hours after an injection. Intramuscular injection of penicillin does not prolong the concentration in the blood significantly and as a result use of the continuous intravenous drip method has many proponents. By this means it is possible to maintain a relatively constant level of penicillin in the blood for a longer period with about the same amount of penicillin that otherwise would be given by single injection.

Oral administration of penicillin usually has not been successful. The acidity of gastric juices seems to be the determining factor, as therapeutic levels of penicillin can be maintained in the serum of patients who have achlorhydria when penicillin is administered orally. However, Welch, Price and Chandler[5] reported that penicillin can be modified by being absorbed on magnesium and aluminum hydroxides, and that when these preparations are given by mouth it is possible to prolong the concentration of penicillin in the blood. Penicillin may be found in saliva after systemic administration but the concentration is probably not as high as it is in the blood, regardless of the method of administration.

The sodium and calcium salts of penicillin are employed for treatment of infections. These usually are made up in solutions of various concentrations with normal saline as the vehicle. Solutions containing 250 Oxford units of penicillin per cubic centimeter are satisfactory for the purpose of irrigation only, as the solution is not in contact with infected surfaces long enough for marked bacteriostatic or bactericidal purposes. Mouthwashes of this type may be employed in treatment of oral infections.

For topical application or insufflation, penicillin and a sulfonamide compound may be ground together. The final mixture contains 1,000 to 5,000 Oxford units of penicillin per gram of powder. Penicillin in saline solution may be nebulized and used as an inhalant. It is administered several minutes each hour throughout the day. For acute infections in which a high, constant level of penicillin in the blood is desired, the intravenous drip method of application has merit. Half of the dose of penicillin for twenty-four hours is dissolved in a liter of isotonic saline or dextrose solution and is administered at a constant rate. If a short interval occurs between the time this is all given and the time to start the next dose, a limited amount of physiologic saline solution or a 5 per cent solution of dextrose can be given through the same needle to keep the intravenous system in use and ready for the next dose. This continuous use of the intravenous system eliminates the necessity for numerous venipunctures and prevents the irritation and possible thrombosis which occasionally attend the intermittent type of administration. By this method of administration 100,000 or more Oxford units may be given each day and a satisfactory level in the blood can be maintained throughout the entire period. In infections such as bacteriemia the continuous intravenous drip method may be the one of choice.

The intramuscular administration of penicillin is simple and is employed widely. However, it is not always practical for severe infection or septicemia because the concentrations in the blood vary. At least eight injections of 10,000 to 20,000 units of penicillin in 2 to 4 cc. of isotonic saline solution are required every twenty-four hours. An ice bag

5. Welch, Henry, Price, C. W. and Chandler, Velma P., Prolonged Blood Concentrations after Oral Administration of Modified Penicillin. *J.A.M.A.* 128:845 (July 21) 1945.

applied to the site of injection, prior to and after the injection, will reduce pain. When 0.25 cc. of a 1 per cent solution of procaine hydrochloride is added to the solution of penicillin the pain of injection will be reduced.

Mixtures of beeswax and peanut oil have been used as a vehicle for prolonging the action of penicillin. When these mixtures are used, absorption is delayed and the level in the blood remains high for a longer period than when some other vehicles are used. This delay is important when penicillin is administered for chronic infections.

Penicillin may be administered into the spinal canal, bone marrow, pleural cavities and affected joints, as well as into regions in which tubes have been left in place at operation to carry the solution.

In dental infections both bone and soft tissue may be involved. In acute osteomyelitis clinical improvement may follow administration of penicillin before some of the characteristic osseous changes become evident roentgenologically.

In chronic osteomyelitis it is desirable to administer penicillin for a few days prior to surgical treatment and throughout the period of recovery. Progressive spreading osteomyelitis which may prove resistant to treatment with the sulfonamide drugs many times responds to treatment with penicillin and surgical eradication of sequestra and infected bone, according to Williams and Nichols.[6] Mowlem[7] has used penicillin successfully in treatment of osteomyelitis of the mandible. In this treatment it is important to combine administration of penicillin with adequate surgical removal of all devitalized bone.

Results of treatment of cellulitis attributable to penicillin-sensitive organisms

6. Williams, H. L. and Nichols, D. R., Spreading Osteomyelitis of the Frontal Bone Treated with Penicillin. *Proc. Staff Meet., Mayo Clin.* 18:467 (December 1) 1943.

7. Mowlem, R., Surgery and Penicillin in Mandibular Infection. *Brit. M. J.* 1:517 (April 15) 1944.

Fig. 1.—Patient in case 1: a, before administration of penicillin was started; b, at time of dismissal from hospital.

have been spectacular. Dental infection is too frequently the cause of facial cellulitis. When Ludwig's angina develops as the result of dental infection the infection is almost always polymicrobial. Streptococci, staphylococci and Vincent's spirilla, the organisms usually found, are sensitive to penicillin. If penicillin is given early enough and in adequate amounts, heat is applied locally and the usual care is given, cellulitis may respond without surgical intervention. Certainly operation, even simple drainage, was a more serious procedure before penicillin was introduced. Whenever large abscesses form, the region may be drained successfully if penicillin is administered systemically.

Herrell and Nichols[8] of the Mayo Clinic reported the use of penicillin in 6 cases of cellulitis of the mouth. In 2 cases the cellulitis was complicated by septicemia; in 1 case the causative organism was Staphylococcus aureus and in the other, a hemolytic streptococcus. Sulfonamides had been used unsuccessfully in all but 1 of the cases. Penicillin (32,000 to 40,000 units in 2 liters of physiologic salt solution daily) was given by the continuous intravenous drip method. In the 2 cases of cellulitis complicated by septicemia, blood cultures were negative within forty-eight hours after administration of penicillin was begun. No toxic effects were observed from the penicillin.

Of the following case reports, cases 1 and 2 are quoted from the article by Herrell and Nichols:

Case 1.—A girl, aged 12 years, was admitted to the hospital because of a rather extensive phlegmon of the mouth. One week before her admission she had noticed pain and distress in the region of the left lower first molar tooth. After the onset of pain in the region of the molar tooth, swelling had developed on the left side of the face, mouth, and submaxillary region. Severe pain in the

8. Herrell, W. E. and Nichols, D. R., Penicillin in the Treatment of Cellulitis of the Mouth. *Am. J. Orthodont. and Oral Surg. (Oral Surg. Sec.)* 30:1 (January) 1944.

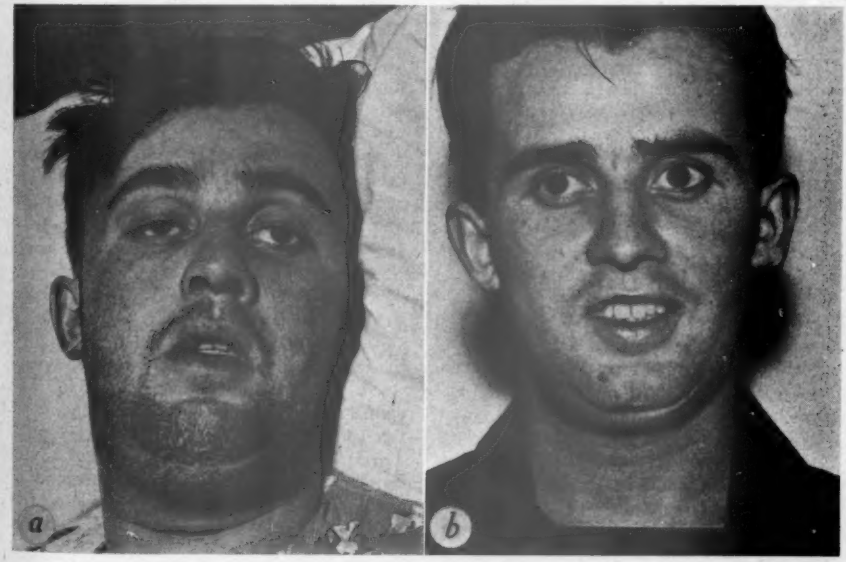

Fig. 2.—Patient in case 2: a, at time of admission to hospital; b, at time of dismissal from hospital[8]

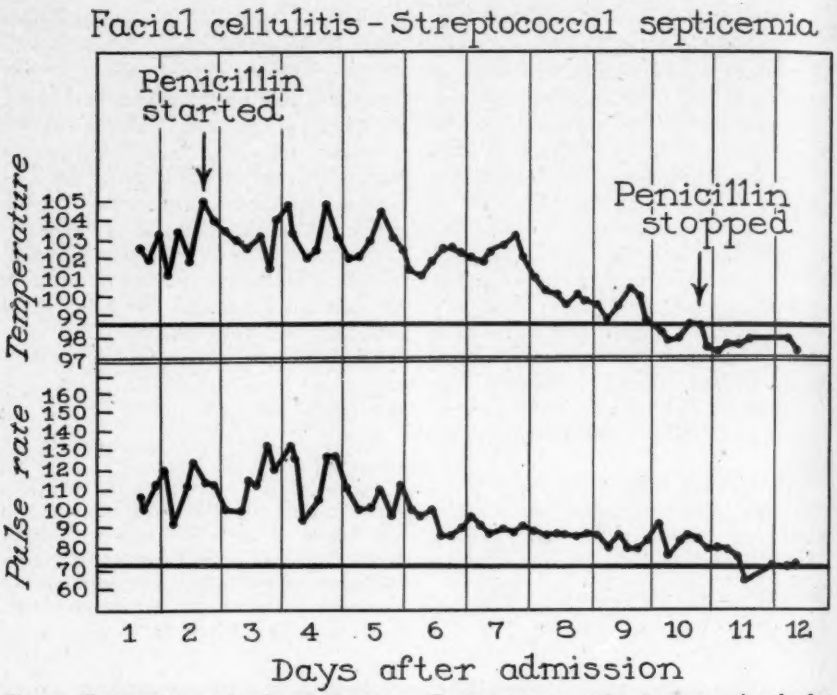

Fig. 3.—Temperature and pulse rate in case 2. Temperature was taken by rectum for the first seven days; thereafter, it was taken by mouth[8]

entire left side of the face had been present. On the fourth day of her illness she had been unable to swallow solid foods. The infection had continued to spread and the signs suggestive of general sepsis had developed. At the time of her admission to the hospital she appeared to be seriously ill. Examination revealed redness, tenderness, and marked induration extending from the left side of the face far down into the neck. The mouth could scarcely be opened. It was extremely difficult for her to swallow liquids but the airway seemed adequate (Fig. 1*a*). The left lower first molar tooth was badly decayed. Her temperature was 101° F. The leucocytes numbered 12,900 per cubic millimeter of blood. A roentgenogram of the mandible did not disclose any abnormality. Blood cultures made at the time of the patient's admission were negative. During the next twenty-four hours after her admission to the hospital, the patient's condition became progressively worse and the inflammation became more extensive. Initial treatment consisted in the local application of heat. Twenty-four hours after her admission, penicillin therapy was begun. She received 20,000 Oxford units of penicillin sodium in 1 liter of physiologic salt solution twice daily for the next six and a half days. This was administered by the intravenous drip method . . . Within forty-eight hours after penicillin therapy was started, the patient was able to swallow without difficulty and her general condition was markedly improved. The swelling and edema rapidly subsided. A small abscess formed and ruptured spontaneously through the skin. The temperature reached normal four days after the administration of penicillin was started. The leucocyte count also was normal at this time and remained so. With the exception of a slight amount of drainage, her progress was entirely satisfactory and she was dismissed from the hospital on the fourteenth day after her admission. An abscess was present below the first left molar tooth, which was extracted

later by her family dentist. No complications followed (Fig. 1*b*).

Case 2.—The patient was a man, 23 years of age. Two days after extraction of the third right mandibular molar tooth, the right side of the patient's face had become painful and extensively swollen. Sulfathiazole and sulfapyridine had been administered in doses that are considered adequate for ordinary therapeutic purposes. When the patient was seen at the Mayo Clinic, the inflammation had extended deeply into the neck and he was critically ill. He was unable to swallow and was experiencing great difficulty in breathing. The leucocyte count was 25,000 per cubic millimeter of blood. He could scarcely open the mouth (Fig. 2*a* and *b*). The rectal temperature was 103° F. but rose gradually to 105° F. (Fig. 3). Blood cultures were taken and the intravenous administration of penicillin calcium was begun (22,000 Oxford units of penicillin calcium in 1 liter of physiologic salt solution were administered twice a day). The blood cultures disclosed the presence of streptococci which produced slight hemolysis in blood agar. Brain broth cultures also showed the presence of streptococci.

During the first twenty-four hours of treatment the patient did not appear to be improving, and on one occasion he nearly died as a result of respiratory embarrassment. Forty-eight hours after the initiation of penicillin therapy, there was profuse drainage from the tooth socket and the patient was able to swallow liquids. His temperature and pulse remained elevated. By the fourth day of treatment he was making remarkable progress. A blood culture obtained on this day was negative. He continued to improve. His temperature gradually reached normal after eight days of treatment. By the end of the first week's treatment the patient was able to eat solid foods and felt entirely well. His total stay in hospital was fourteen days.

Case 3.—Recently I saw a woman in her early thirties who had had recurrent aphthous lesions at the time of menstruation. She usually had multiple lesions in her mouth as well as in the vulvar region. Eating and speaking were almost impossible during these periodic occurrences. Previous treatment had consisted of the local application of escharotics and the use of 5 per cent sodium sulfathiazole as a mouthwash. Some relief followed such treatment.

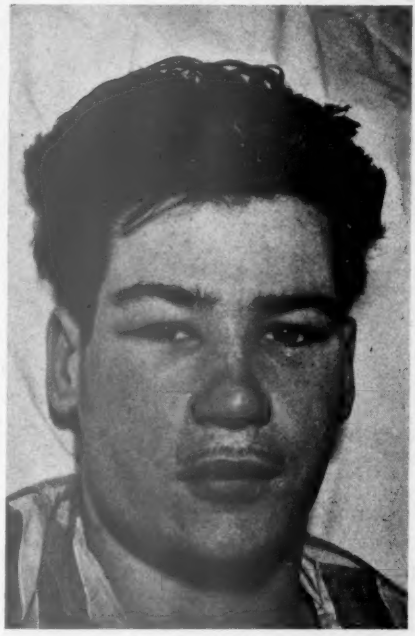

Fig. 4.—Patient in case 5 eight hours after admission to hospital and administration of penicillin begun

This patient was given a solution of penicillin (250 units per cubic centimeter); 5 cc. was placed in the mouth every thirty minutes throughout the day and allowed to remain there as long as possible. The day after treatment with penicillin was started, the patient was free of soreness and pain and was able to eat without discomfort. The multiple lesions of the mouth were improved.

An acute alveolar abscess in a child can be serious. First, pain is present, then swelling and finally drainage occurs. The patient may be seriously ill for a day or so, temperature may be increased and general symptoms of toxicity may be present.

Case 4.—The patient was a girl, 6 years old. A deciduous first molar of the mandible started to ache the day before she was examined. On examination, slight swelling was present in the region immediately adjacent to the tooth. The tooth had been restored with an amalgam filling and later the filling had been fractured. Dental roentgenograms

revealed recurrent caries beneath the filling. On the second day after the initial examination the patient's temperature was elevated and submaxillary adenitis developed. A teaspoonful (4 cc.) of penicillin in an aluminum hydroxide preparation was given by mouth each hour. Since each cubic centimeter contained 1,000 units, the hourly dose was 4,000 units throughout the day. After penicillin (about 64,000 units) had been administered for one day the temperature returned to normal and no pain was present either on percussion of the tooth or on palpation of the area about the tooth. The swelling was reduced and no toxic symptoms were present.

Three days after administration of penicillin was started, the tooth was removed. Nitrous oxide anesthesia was used. Penicillin was administered for a day after removal of the tooth. Recovery was complete and uneventful.

Case 5.—A man, 20 years of age, was admitted to the Mayo Clinic on February 4, 1946, and was hospitalized immediately (Fig. 4). An abscessed tooth had been "drained" two weeks previously. On examination, the root canal was found to be plugged and cellulitis was developing rapidly. His temperature was normal. Erythrocytes numbered 4,580,000 and leukocytes, 5,100 per cubic millimeter of blood.

Administration of penicillin was begun and

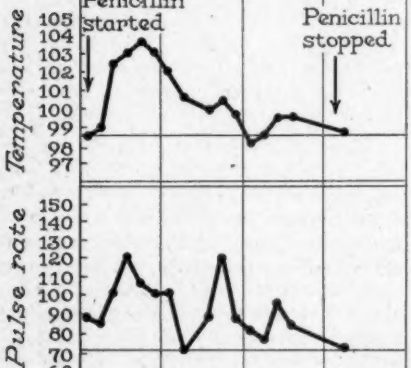

Fig. 5.—Temperature and pulse rate in case 5

160,000 units was given intramuscularly in the first day and on each of two subsequent days. Hot packs were applied to the region of the abscess. Twelve hours after the patient was admitted to the hospital his temperature was 103.6° F. (Fig. 5). At this time consideration was given to the administration of one of the sulfonamides in addition to penicillin.

On February 5, the specific gravity of the urine was 1.027. Fifty pus cells were found in each high-power field of urine. The subperiosteal abscess drained spontaneously and the temperature began to fall. On February 6 the abscess was draining actively and the swelling was reduced. The next day the dose of penicillin given was 60,000 units and the patient was dismissed from the hospital (Fig. 6).

Vincent's angina is a serious disease. Schwartz[9] reported its successful treatment with penicillin in 14 cases. Bornstein[10] treated severe acute Vincent's angina successfully in 45 cases. The initial injection of 40,000 units was followed by injection of 20,000 units every three hours until a negative smear was obtained. Relief of symptoms usually occurred within six hours. In 75 cases of Vincent's type of acute ulcerative gingivostomatitis reported by MacGregor and Long,[11] results of treatment with penicillin in pastilles containing 250 to 500 units were good. Smears were negative in an average of two to three days after treatment was started.

The number of articles in the current dental literature which deal with the application of penicillin and the results therefrom is increasing.

Penicillin in Combination with Anesthetic Agents

Soon after production of penicillin was begun, some of the drug was obtained

9. Schwartz, B. M., Effectiveness of Penicillin in Treatment of Vincent's Angina. *J.A.M.A.* 128:704 (July 7) 1945.

10. News and Comment, Penicillin in Treatment of Vincent's Angina. *Bull. U. S. Army M. Dept.* 4:145 (August) 1945.

11. MacGregor, A. B. and Long, D. A., Penicillin Pastilles in the Treatment of Acute Ulcerative Gingivo-Stomatitis (Vincent's Type). *Brit. D. J.* 78:39 (January 19) 1945.

and the solution made up was used as a vehicle for procaine or metycaine hydrochloride.

The calcium and sodium salts of penicillin were used in solutions of various strengths (from 250 to 1,000 units per cubic centimeter) and the salts were obtained from various manufacturers. The concentrations of the anesthetic agents used were 1, 2, 3, 4 and 5 per cent. The first penicillin tended to have a deep yellow color, and when it was mixed with concentrations of metycaine of more than 2 per cent, precipitation occurred. This did not occur immediately after preparation but in fifteen to forty-five minutes. The presence or absence of a vasoconstrictor did not alter the phenomenon. In the laboratory the various solutions were tested for bactericidal or bacteriostatic powers, and, by using critical levels of penicillin, it was found that in the solutions in which precipitation had occurred the action of the penicillin was decreased or destroyed. Such precipitation did not occur when the procaine hydrochloride was used. In no instance did the adequacy of the local anesthesia seem to be altered.

To complete the study, anesthetic agents were given in solutions of penicillin to more than 500 patients. Penicillin available at present may be more highly purified, for precipitation is no longer a problem. This study has shown that penicillin and procaine or metycaine can be combined if felt necessary.

Combined Use of Penicillin and Sulfonamide Drugs

The use of any of the sulfonamides in combination with penicillin is not contraindicated, unless the patient has had a sensitivity reaction to the sulfonamide drugs. The two agents can be administered together by any of the methods acceptable for administration of penicillin, or penicillin can be given intramuscularly and the sulfonamide drug orally. The dose of the sulfonamide drug should be adequate to effect a concentration of 10 to 12 mg. per 100 cc. of blood. A combination of penicillin and one of the sulfonamides may be used when a polymicrobial infection exists in which some of the organisms are sensitive to treatment with penicillin and others are sensitive to treatment with one of the sulfonamide drugs.

Penicillin and sulfathiazole may be triturated together in various proportions and insufflated into surgical fields.

In instances in which treatment with either penicillin or one of the sulfonamides alone is not satisfactory, administration of the one agent may be continued and the other added.

Comment

When either or both drugs are to be used it is necessary to follow these rules: 1. Identify the organism if possible. 2. Give the sulfonamide compounds and

Fig. 6:—Patient in case 5 at time of dismissal from hospital (two days after admission)

penicillin in doses sufficient to be effective. Failure to provide sufficient drug to produce a bacteriostatic or bactericidal effect may make the bacteria responsible for the infection resistant to the drug. 3. Institute supportive measures such as rest in bed and hot moist packs. 4. Be sure of the diagnosis if the drugs are to be used topically. If the diagnosis is not correct an oral manifestation of generalized systemic disease may be treated by local means and as a result the causative bacteria may become drug resistant.

THE USE OF PENICILLIN LOZENGES IN THE TREATMENT OF VINCENT'S INFECTION AND OTHER ACUTE GINGIVAL INFLAMMATIONS

Irving Glickman,* D.M.D., Boston

PENICILLIN has been administered systemically by intramuscular injection[1-3] and also has been used locally in the form of pastilles,[2,4,5] packs,[6] topical application[2,3,7] or injection into the gingivae[8] for the treatment of acute Vincent's infection and other acute gingival inflammations. Although uniformly successful results have been reported after the use of penicillin for the alleviation of the symptoms of acute gingival inflammation, sufficient detailed information regarding the resulting clinical changes in the gingivae were not available in the literature. Consequently, an experiment was undertaken to clarify this phase of the local oral use of penicillin.

One hundred and fifty-five ambulatory patients with acute gingival inflammation were studied. The distribution of the cases is summarized in the table. In 130 cases the diagnosis was acute Vincent's infection, in 15 it was nonspecific acute gingival inflammation, in 5 cases, acute pericoronitis, and in 5 cases, aphthous stomatitis.

Diagnosis and Treatment

The diagnosis of acute Vincent's infection was made on the basis of painful, eroded, punched-out gingival margins and superficial gray slough demarcated from the remaining gingival mucosa by a discrete linear zone of accentuated erythema. In many instances, varying degrees of spontaneous gingival bleeding, discomfort, malaise, lymphadenitis and

*Assistant professor of oral pathology, Tufts College Dental School, Boston.

1. Sweeney, J. S., Morginson, W. J., Robinson, R. W. and Kilpatrick, E. M., Therapeutic Effectiveness of Penicillin in Treatment of Vincent's Stomatitis and Its Failure to Influence Favorably Certain Other Medical Conditions. *J. Lab. & Clin. Med.* 30:132 (February) 1945.

2. Strock, A. E., The Treatment of Acute Ulcerative Gingivostomatitis (Vincent's Infection) with Penicillin. *New York J. Den.* 15:263 (October) 1945.

3. Schuessler, C. F., Fairchild, J. M. and Stransky, I. M., Penicillin in the Treatment of Vincent's Infection. *J.A.D.A.* 32:551 (May 1) 1945.

4. MacGregor, A. B. and Long, D. A., Use of Penicillin Pastilles in Oral Infections. *Brit. M. J.* 2:686 (November 25) 1944.

5. MacGregor, A. B. and Long, D. A., Penicillin Pastilles in the Treatment of Acute Ulcerative Gingivo-Stomatitis (Vincent's Type). *Brit. M. J.* 78:33 (January 19) 1945.

6. Moore, D. A., Penicillin—Its Use for the Treatment of Vincent's Infection. *J. Canad. D. A.* 11:543 (December) 1945.

7. Cofield, K. R., Ferguson, E. W. and Toye, A. E., Tropical Application of Penicillin in the Treatment of Vincent's Infection. *J.A.D.A.* 32:529 (May 1) 1945.

8. Weiner, Leonard, The Use of Penicillin in Clinical Dentistry. *J.A.D.A.* 32:538 (May 1) 1945.

elevation of temperature were associated symptoms.

The patients with acute Vincent's infection could be subdivided into two groups, namely, primary and secondary. In the primary group, the infection was limited to the marginal region of otherwise unaltered gingivae. In the secondary group, Vincent's infection was superimposed on underlying chronic gingival changes such as vascular congestion, edema and varying degrees of pocket formation.

A diagnosis of nonspecific acute gingival inflammation was made in those cases in which there was diffuse glossy erythema of the gingivae, slight edema and a tendency toward gingival bleeding in the absence of any necrosis or sloughing. Sudden onset, discomfort, malaise and slight elevation of temperature were associated clinical features.

In the cases of acute pericoronitis, the third molar region of the mandible was involved. These patients had varying degrees of erythema, edema, ulceration, lymphadenitis and trismus.

The patients with aphthous stomatitis presented the classical glistening gray spherical lesions with erythematous linear elevated margins.

Because I was interested in determining the effect of penicillin alone on the gingivae, adjunct methods of treatment were not employed in treating these patients. Two types of lozenges were used, each of which contained 1,000 Oxford units of penicillin and required approximately eight minutes to dissolve in the oral cavity. In one type* 1,000 units of calcium penicillin was incorporated in a hard, firm sugar base; in the other the vehicle for the penicillin consisted of a moderately firm inert gelatinous mass. In order to rule out any possible secondary effects resulting from the presence and dissolution of a lozenge in the oral cavity, a placebo tablet, identical with the former type of lozenge but containing no penicillin, was substituted for the regular lozenge in 10 cases of acute Vincent's infection.

*The major portion of these lozenges was supplied by courtesy of the United Drug Company, Boston.

Distribution of Cases

Diagnosis	Cases
Acute Vincent's infection	130
Primary	68
Secondary	62
Nonspecific acute gingival inflammation	15
Acute pericoronitis	5
Aphthous stomatitis	5
Total	155

After the initial examination no local or systemic treatment was instituted. Each patient was instructed as follows:

Use one lozenge each hour for the first twenty-four to forty-eight hours; decrease the dose to one lozenge every two hours for an average of five additional days.

Allow the lozenge to dissolve slowly anywhere in the oral cavity.

Do not alter the diet or dentifrice or institute any form of home treatment.

Do not discontinue the use of tobacco.

These procedures were expected to determine the effect of the local use of penicillin on acute Vincent's infection which was uncomplicated by an underlying chronic gingival change, on acute Vincent's infection superimposed on an underlying chronic gingival condition, and the difference, if any, between the effect on acute and chronic gingival disease.

Clinical Observations

The first observation was made twenty-four hours after the initial visit when an average of sixteen lozenges had been used. Subsequent observations were made in the course of a seven day period.

Patients using placebo lozenges. — There were no marked clinical changes in any of the 10 cases of acute Vincent's infection in which the placebo lozenges were used.

Patients using penicillin lozenges for twenty-four hours.—1. Acute Vincent's infection, primary group—gingivae unaltered by other changes. In all cases there was a definite reduction in erythema and disappearance of the marginal gray slough. The eroded gray gingival margin was replaced by a slightly red, clean-cut knife edge. However, the crater-like depressions persisted so that the normal morphologic contour of the gingival margin was not evident. The pain and tendency toward hemorrhage were reduced or completely disappeared. The malaise was alleviated.

2. Acute Vincent's infection, secondary group—underlying chronic gingival changes. Alterations in the acute aspects of these cases were comparable to those previously described. However, the underlying chronic inflammatory conditions, such as gingival enlargement, edema, venous congestion and pocket formation, persisted.

3. Acute nonspecific gingival inflammation. In general there was a pronounced reduction in erythema and edema. The smooth, shiny surface of the gingivae reverted to the normal stippled appearance. The pain, discomfort and systemic symptoms were alleviated.

4. Acute pericoronitis. In general the severity of the erythema, edema, ulceration and pain was reduced significantly. In no instance, however, was the normal condition of the tissues attained.

5. Aphthous stomatitis. Penicillin had no effect on the course, size or symptoms of these lesions.

Patients using penicillin lozenges for forty-eight hours to seven days. — The most pronounced response to penicillin occurred in the first twenty-four hour period. Although this initial response varied slightly in individual cases, continued use of the drug did not effect an appreciable alteration in the clinical appearance of the gingivae after the first twenty-four hour period.

General Findings.—Two patients reported nausea and discomfort after the use of one or two penicillin lozenges. It was necessary to discontinue the drug in these cases.

Eight patients with acute Vincent's infection who responded favorably to penicillin but did not submit to further treatment of any kind reported to the clinic with recurrence of the acute condition within short intervals after the penicillin had been discontinued.

Comment

Penicillin in lozenge form, 1,000 units per lozenge, alleviated the objective and subjective symptoms of acute Vincent's infection and other acute gingival inflammations in the absence of any other form of treatment. It should be noted that the diagnosis of acute Vincent's infection was made without necessarily subscribing to the interpretation of this condition as a specific clinical entity of infectious origin.

Although penicillin effected pronounced changes in the gingivae in cases of acute Vincent's infection, a return to the normal size, color, shape and consistency of the gingivae did not follow its use in all cases. The limited effectiveness of penicillin was emphasized in those cases in which acute gingival inflammation was superimposed on underlying gingival disease. In such cases the underlying condition persisted after the acute symptoms had disappeared.

When compared with other drugs used in local treatment, the speed of action and consistent effectiveness of penicillin lozenges in the alleviation of the objective and subjective symptoms of acute gingival inflammation are most impressive. The fact that comparable findings

were not obtained with the placebo lozenges points to the penicillin itself as the effective agent rather than any mechanical action or associated increased salivary flow. The significance of these clinical impressions is in no way minimized by the fact that alleviation of acute Vincent's infection also is claimed for a large number and variety of other drugs and even for local mechanical measures alone. In addition to its comparative speed of action and consistent effectiveness, the fact that penicillin may be used by patients at regularly prescribed intervals so as to obtain action of the drug over a prolonged period of time, without injury to the gingivae, enhances its clinical value.

It is important, however, to recognize that despite the uniformly striking results obtained with penicillin lozenges, acute gingival inflammation does recur in many instances when the drug is discontinued. The local use of penicillin does not comprise a complete treatment for acute gingival inflammation. Scaling, curettage or other local measures are necessary for the alleviation of underlying chronic disease of the gingivae. Penicillin can be substituted advantageously for any other local drug treatment, but it does not replace the systemic management which the peculiar nature of individual cases may require.

Patients should be informed that the initial improvement is only transitory. Dismissal of patients after the initial response to penicillin or after several days of treatment with it because the local symptoms have subsided is an ill advised procedure because of a tendency toward recurrence. Patients with acute gingival inflammation should not be dismissed until all gingival disease has been corrected because persistent zones of chronic inflammation contribute to recurrence.

When penicillin is to be used in the treatment of acute gingival inflammation it should be prescribed at the first visit. Shortly thereafter further local treatment may be instituted with safety. Proper oral hygiene, which is a routine feature of periodontal treatment, must be instituted in the course of treatment with penicillin lozenges if the irritating effect of daily accumulations of debris on the gingivae is to be eliminated as a complicating feature.

It should be noted that the favorable results obtained in this study with penicillin lozenges of 1,000 unit strength do not preclude the possibility of comparable or even more favorable results with penicillin administered in some other form or dosage.

Summary

A clinical experiment was conducted to determine the effect of the local use of penicillin on the gingivae in 155 cases of acute gingival inflammation. Lozenges containing 1,000 units of penicillin were used at one and two hour intervals for a period of seven days by all but 10 patients. In this latter group, placebo lozenges which contained no penicillin were used. For purposes of the experiment no other treatment was instituted. No notable changes resulted from the use of placebo lozenges.

Penicillin alleviated the objective and subjective symptoms of acute Vincent's infection and other acute gingival inflammations. The most pronounced effect of the penicillin lozenges was observed at the end of twenty-four hours. Penicillin lozenges were effective in reducing the severity of acute pericoronitis but produced no changes in the progress of aphthous stomatitis. Recurrence of acute gingival inflammation was noted after an apparently favorable response to treatment with penicillin lozenges had occurred. The effect of penicillin was limited to the acute aspects of gingival disease. It produced no apparent clinical change on underlying chronic inflammatory disease of the gingivae.—*416 Huntington Avenue.*

THE Journal OF THE
AMERICAN DENTAL ASSOCIATION

MARCH 15, 1947 • VOLUME 34 • NUMBER 6

LON W. MORREY, D.D.S., *Editor*

Published by the American Dental Association • 222 East Superior St. • Chicago 11, Ill.

EDITORIALS

LON W. MORREY: NEW EDITOR OF THE JOURNAL

WITH this issue, a new editor assumes charge of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION. Lon W. Morrey, director of the Association's Bureau of Public Relations since 1933, was named to the post of editor for an initial term of three years at the recent meeting of the Board of Trustees.

Very few men in the dental profession have had Dr. Morrey's unusual opportunity of taking part in so many important phases of dental activity. Upon graduation from dental school in 1923, he entered private practice. Later he became director of a school dental program which was one of the earliest to demonstrate the soundness of this approach to effective preventive dentistry. He continued this interest in public health dentistry by taking a post as director of the Dental Division, Illinois State Department of Public Health, and in 1928 became director of the Dental Division of the Chicago Board of Health. His effective work in dental health education attracted national attention and, in 1933, he became director of the Bureau of Public Relations of the American Dental Association.

Under his direction, the Bureau developed a broad program of facilities and services in the field of dental health education and pioneered in the use of many methods and technics. Through the Bureau, Dr. Morrey also initiated a program of public relations which involved his talents in the production of radio sketches, publicity materials, news and magazine articles. Dr. Morrey has also served as secretary of the Committee on Economics and as consultant and adviser to other agencies of the Association interested in the development of a sound national health program. He has contributed voluminously to the literature of dentistry on a wide variety of topics.

This long experience in, and familiarity with, the affairs of dentistry and of the

American Dental Association richly commend him for his new position. As editor, Dr. Morrey will be able to enlarge the fields of activity in which he has already established so productive a record. THE JOURNAL, under his direction, will be assured of the leadership and initiative necessary to maintain its position as the largest and most influential journal in the profession.—*H. H.*

THE ROLE OF FLUORINE IN DENTAL CARIES:

II. TOPICAL APPLICATION OF FLUORIDES

THE demonstrated relation between the presence of fluorides in domestic water supplies and the prevalence of dental caries in children has led directly to experimental studies on the effect of the topical application of various fluorides to teeth. These studies, although not uniform in methods or findings, have demonstrated the effectiveness of topically applied fluoride solutions in reducing the incidence of dental caries in children under certain conditions. Considerable work still remains to be done in determining the optimum frequency and method of such applications, but the use of topically applied fluorides by the dentist can now be recommended as a general preventive measure. This is not to say that the topical application of fluorides should be surrounded with extravagant claims to the individual patient or parent, for the present status of knowledge in this relatively new field will not support them. The toxic potentialities of a 2 per cent aqueous solution of sodium fluoride, when properly applied by the dentist, are not significant, though self-medication through the use of various fluoride-containing tablets[1] and the home use of fluoride solutions may not be without dangers.

Knutson and Armstrong initiated a study in the topical application of fluorides in 1942 and have since reported their findings for the first three study years.[2-4] Cheyne,[5] Bibby[6] and others have noted a similar, though varying, reduction in caries activity in topically treated teeth. The mechanism by which this reduction is obtained by fluorides is not understood. The application of the sodium fluoride solution is held by Volker[7] to decrease the solubility of enamel by permitting the fluoride ions to replace certain more soluble ions in the outer layer of the enamel surface. Other workers believe that the acid-producing potential of the dental environment is decreased by the use of fluorides which act as enzyme inhibitors.[8]

1. Editorial. I. The Role of Fluorine in Dental Caries: Synthetic Fluoride Tablets and Bone Meal Preparations. *J.A.D.A.* 34:345 (March 1) 1947.
2. Knutson, J. W., and Armstrong, W. D., Effect of Topically Applied Sodium Fluoride on Dental Caries Experience. *Pub. Health Rep.* 58:1701 (November 19) 1943.
3. Knutson, J. W., and Armstrong, W. D., Effect of Topically Applied Sodium Fluorides on Dental Caries Experience; Report of Findings for the Second Study Year. *Pub. Health Rep.* 60:1085 (September 14) 1945.
4. Knutson, J. W., and Armstrong, W. D., Effect of Topically Applied Sodium Fluoride on Dental Caries Experience. III. Report of Findings for the Third Study Year. *Pub. Health Rep.* 61:1683 (November 22) 1946.
5. Cheyne, V. D., Human Dental Caries and Topically Applied Fluorine: A Preliminary Report. *J.A.D.A.* 29:804 (May) 1942.
6. Bibby, B. G., The Use of Fluorine in the Prevention of Dental Caries. II. Effect of Sodium Fluoride Applications. *J.A.D.A.* 31:317 (March 1) 1944.
7. Volker, J. F., Effect of Fluorine on Solubility of Enamel and Dentin. *Proc. Soc. Exper. Biol. & Med.* 42:725 (December) 1939.
8. Dean, H. T.; Jay, Philip; Arnold, F. A., Jr.; McClure, F. A., and Elvove, Elias, Domestic Water and Dental Caries, Including Certain Epidemiological Aspects of Oral L. Acidophilus. *Pub. Health Rep.* 54:862 (May 26) 1939.

The number of applications, the most effective concentration of the solution to be used and the duration of the protective effect must still be matters of speculation and investigation. Jordan[9] reports that the minimum number of applications for each tooth seems to be between four and eight. When the number of applications exceeds eight, there is no appreciable increase in effectiveness. Cheyne[5] and Bibby[10] indicate that solutions of lower concentration than 2 per cent and different solvents may be desirable. Further study is needed before an estimate of the length of the protective period can be hazarded. The renewal of applications on an annual or semiannual basis, therefore, may be indicated following an initial series of four treatments for each tooth. Topical applications to the teeth of adults have not been shown to be effective.[11]

The method of application seems to be of some importance, and the following procedure has been successfully employed by Knutson and Armstrong.[2]

> Prior to the institution of treatment, each child . . . received a dental prophylaxis treatment consisting of scaling and polishing of the teeth and a detailed dental examination. . . . The treatment consisted of isolation of the teeth with cotton rolls, drying the teeth with compressed air, and wetting the crown surfaces of the teeth with 2 per cent sodium fluoride solution. The applied solution was allowed to dry in air for four minutes. After the cotton rolls had been removed, the child was instructed to expectorate and he was then dismissed.

Even under a carefully regulated regimen of application, the results obtained may differ quantitatively in the individual patient from those which have been observed in controlled clinical investigation, since the conditions of treatment are not the same. Significant results can be expected, however, from the topical application of fluorides to the teeth of large groups of children. The regular visits to the dental office which fluoride applications entail will also serve to reinforce the benefits obtained in terms of improved dental health. Additional investigations in all phases of the topical application of fluorides should be made in order to determine more definitely the measures that will produce the most extensive and permanent results.—*H. H.*

9. Jordan, W. A.; Wood, O. B.; Allison, J. A., and Irwin, V. D., The Effect of Various Numbers of Topical Applications of Sodium Fluoride. *J.A.D.A.* 33:1385 (November 1) 1946.
10. Bibby, B. G., A New Approach to Caries Prophylaxis: A Preliminary Report on the Use of Fluoride Applications. *Tufts D. Outlook* 15:4 (May) 1942.
11. Arnold, F. A., Jr.; Dean, H. T., and Singleton, D. E., The Effect on Caries Incidence of a Single Topical Application of a Fluoride Solution to the Teeth of Young Adult Males of a Military Population. *J. D. Res.* 23:155 (June) 1944.

A. D. A. AFFAIRS

REGULATIONS ANNOUNCED FOR JUNIOR ESSAY PRIZE CONTEST

The Committee on Membership of the American Dental Association will conduct the junior essay prize contest this year, with the winning students receiving a trip with all expenses paid to the eighty-eighth annual meeting in Boston, August 4-8, Paul W. Zillmann, chairman, has announced.

Junior members of the American Dental Association who are members of the junior class of an approved school of dentistry are eligible to participate in the contest. The dean of the school or a faculty board set up at the school will select a student to represent the school in the contest.

There will be four winners, one from each of the four dental school zones. Zone I takes in schools in Massachusetts, New York, Pennsylvania, District of Columbia, Virginia and Maryland; Zone II consists of Michigan, Ohio, Indiana, Kentucky, Tennessee and Georgia; Zone III comprises Minnesota, Wisconsin, Iowa, Illinois, Missouri and Louisiana; and Zone IV is Nebraska, Texas, Oregon and California.

The subject for the 1947 essay is "Dental Health as a Community Health Problem." The manuscript must be not more than 1,000 words, typewritten, double-spaced on one side of the paper only, and must be certified by the dean of the student's school. All entries must be submitted to the Committee on Membership not later than May 1. Results will be announced July 1.

The contest judges will be announced later. At the previous junior essay contest, held in 1942, the four winning students were awarded $150 in war bonds, as wartime conditions prevented their attending the annual meeting. The contest was suspended during the war.

CHRISTMAS SEAL CAMPAIGN BELOW LAST YEAR'S LEVEL

Incomplete receipts from the annual sale of Christmas Seals for the Relief Fund of the American Dental Association reached $32,492 on February 15, with returns still coming in.

The total level of contributions on February 15, 1946, was $39,000. Any dentists who have not yet contributed are urged to do so at once. It is especially important that returns this year are high so that the work of the Relief Commission will not be hindered through lack of sufficient funds.

Returns may still be made in the envelope accompanying the seals. Send the contribution to the Relief Fund, American Dental Association, 222 East Superior St., Chicago 11.

DENTAL SOCIETIES

NEW JERSEY TO HOLD WORKSHOP IN DENTAL HEALTH PLANNING

A workshop in dental health planning will be sponsored by the Council on Dental Health of the New Jersey State Dental Society on March 21-23 at Asbury Park, N. J.

Louis A. Saporito, chairman of the New Jersey State Council on Dental Health, will preside at the opening session of the meeting. Walter A. Wilson, chairman of the Professional Relations Committee of the Council on Dental Health of the American Dental Association, will act as permanent chairman of the workshop.

Speakers on the opening day will in-

clude Joseph F. Volker, Tufts College Dental School, on "Present Status of Preventive Procedures"; Eugene Newman, past-president of the New Jersey State Dental Society, on "Dental Needs and Dental Manpower," and James L. Hughes, president, Southern Dental Society, New Jersey, on "Ability to Pay for Dental Services."

"Existing Dental Health Programs in New Jersey" will be discussed by J. M. Wisan, dental director of the New Jersey State Department of Health; F. J. Houghton, dental director of the Medical Center of Jersey City; Ferde Fisher, dental director of the State Department of Institutions and Agencies, and Norman Sauer, member of the State Board of Dental Examiners.

Four discussion leaders have been appointed to consider specific problems in the planning of community health programs. They are Maxwell J. Lentz, president-elect of the New Jersey State Dental Society; Larry Burdge, Red Bank, N. J.; E. J. Jennings, trustee of the American Dental Association from the fourth district, and William Giblin, president, Essex County Dental Society, New Jersey.

Reports and recommendations from each of the four discussion groups will be presented on the final day of the workshop. The entire meeting will consider these recommendations and then draft the conclusions of the entire workshop group to be presented to the Board of Trustees of the New Jersey State Dental Society.

TEN CONSTITUENT SOCIETIES ANNOUNCE INCREASE IN DUES

Ten constituent societies of the American Dental Association have announced an increase in annual dues for the current year. A list of the societies and the increase in dues follows.

Alabama State Dental Association, from $6 to $12; California State Dental Association, from $7 to 24; Colorado State Dental Association, from $6 to $16; Connecticut State Dental Association, from $6 to $9; Iowa State Dental Society, from $6.50 to $13; Louisiana State Dental Society, from $6 to $10; Maryland State Dental Association, from $4 to $6; Mississippi State Dental Association, from $3 to $6; Washington State Dental Association, from $18 to $24, and West Virginia State Dental Society, from $3 to $6.

M. K. HINE INSTALLED AS PRESIDENT OF ENDODONTISTS

Maynard K. Hine, dean, School of Dentistry, Indiana University, was installed as president of the American Association of Endodontists at the annual meeting of the association held recently in Chicago.

Officers elected at the meeting were: Lewis I. Grossman, School of Dentistry, University of Pennsylvania, president-elect; E. A. Jasper, School of Dentistry, St. Louis University, vice-president; N. Weir Burkman, Birmingham, Mich., secretary, and S. D. Green, Chicago, treasurer.

COUNCIL ON REHABILITATION TO HOLD MEETING APRIL 29-30

The National Council on Rehabilitation will hold its annual meeting April 29-30 at the Coronado Hotel, St. Louis, according to Chauncey S. Truax, executive director.

Previous meetings of the Council have been held in New York. The place has been changed to St. Louis to make it possible for those at the Council meeting also to attend the annual meeting of the National Rehabilitation Association, to be held May 1-3 in St. Louis.

The agenda include topic discussions on the evaluation and rehabilitation of the physically disabled. Among the prin-

cipal speakers will be Howard A. Rusk, professor of medical rehabilitation, New York University.

NEW YORK STATE SOCIETY PUBLISHES NEW JOURNAL

A new and enlarged publication, the *New York State Dental Journal,* made its first appearance in January as the official publication of the Dental Society of the State of New York.

The magazine, which includes a number of scientific articles, is being produced under the supervision of the publication committee of the Dental Society of the State of New York. Theodore Kaletsky is editor of the new journal. Members of the publication committee are Waldo H. Mork, chairman; Leon L. Abbey; Charles M. McNeeley, and D. Austin Sniffen.

ANESTHESIA IN DENTISTRY SOCIETY TO MEET MARCH 24

The American Society for the Advancement of General Anesthesia in Dentistry will hold its spring meeting March 24 in the Hotel New Yorker, New York.

Participants in the scientific symposium will include Robert M. Patterson, Turtle Creek, Pa., on "Intravenous Anesthesia"; Leonard F. Prendergast, Cleveland, on "Nitrous Oxide," and M. Hillel Feldman, New York, on "Ethylene and Vinethene."

ATLANTA DENTAL SOCIETY WILL OPEN HINMAN CLINIC MARCH 23

The 1947 Thomas P. Hinman Midwinter Clinic will be held March 23-25 in Atlanta, Ga., under the sponsorship of the Fifth District Dental Society.

The clinic, founded in 1913, will be held at the Atlanta City Auditorium. Speakers on the agenda include Hamilton B. G. Robinson, Ohio State University, on "Oral Diagnosis"; J. F. Volker, Tufts College, on "Cause and Control of Decay"; Reed O. Dingman, University of Michigan, on "Surgical Principles and Their Application," and Charles H. M. Williams, University of Toronto, on "A Rational System of Treatment of Periodontal Pockets."

ASSOCIATION IS FORMED BY DENTAL SOCIETY SECRETARIES

The American Association of Dental Executive Secretaries was formed recently by the executive secretaries of the Chicago, Cleveland, Cincinnati, Detroit, Indianapolis and Milwaukee dental societies.

Officers of the new organization are Mrs. Helen C. Allen, Detroit, president; Leone Gruelick, Cleveland, secretary, and Clara Hegenbarth, Milwaukee, treasurer.

ACADEMY OF ORAL PATHOLOGY HOLDS FIRST ANNUAL MEETING

The American Academy of Oral Pathology, organized to promote interchange of ideas and the advancement of scientific procedures, teaching and research in oral pathology and related fields, held its first annual meeting February 9 in Chicago.

The Academy was organized by the Registry of Dental and Oral Pathology of the American Dental Association at the Army Institute of Pathology. Any dentist in good standing with the American Dental Association may apply for membership. Members may be elevated to fellowship upon certification by the fellowship committee.

Applicants for membership should apply to the secretary, Lt. Col. Joseph L. Bernier, Army Institute of Pathology, Washington 25, D.C.

Charter members of the Academy are M. S. Ausenberg, University of Maryland; S. S. Arnim, Ohio State University; Dr. Bernier; J .R. Blayney, University of Chicago; L. W. Burket, University of Pennsylvania; P. E. Boyle, University of

Pennsylvania; L. R. Cahn, Columbia University; V. D. Cheyne, University of Iowa; E. D. Coolidge, Chicago College of Dental Surgery; H. M. Goldman, Harvard University; B. Gottlieb, Baylor University; T. J. Hill, Western Reserve University; M. K. Hine, Indiana University; D. A. Kerr, University of Michigan; R. G. Kesel, University of Illinois; P. C. Kitchin, Ohio State University; H. B. G. Robinson, Ohio State University, and Kurt H. Thoma, Harvard University.

LATEST DENTAL SOCIETY ACTIVITIES AND MEETINGS

Alabama.— The seventy-eighth annual meeting of the Alabama Dental Association will be held April 8-10 in the Thomas Jefferson Hotel, Birmingham, according to George W. Matthews, secretary-treasurer.

Speakers on the program include Maynard K. Hine, Indianapolis, on "Periodontia"; T. J. Cook, Miami, Fla., on "Diseases of the Mouth"; T. E. Braly, Chattanooga, Tenn., on "Restorative Dentistry," and L. R. Main, St. Louis, on "Roentgenology" and "X-Ray Interpretation."

Arizona.—The principal speakers scheduled for the annual meeting of the Arizona State Dental Society May 1-3 in Tucson are P. K. Hill and James T. Sweeney, according to Bown K. Litt, Tucson, secretary.

Louisiana.—The annual meeting of the Louisiana State Dental Society, to be held April 10-12 in New Orleans, will include the following speakers: Clyde Davis, Nebraska, on "Operative Dentistry"; W. T. Ewing, Ohio, on "Oral Surgery"; Albert W. Hiller, on the "Economic Aspects of Dentistry," and Sterling V. Mead, president of the American Dental Association.

Michigan.—The 1947 annual meeting of the Michigan State Dental Society will be held April 14-16 in the Hotel Statler, Detroit, according to H. C. Gerber, Jr., executive secretary.

Speakers on the lecture program will include George W. Teuscher, Northwestern University, on "Diagnosis in Pedodontia"; Kenneth A. Easlick, University of Michigan, on "The Public and the Practice of Dentistry in Michigan"; Donald E. Woodard, Kansas City-Western Dental College, on "An Analysis of Surgical Problems"; Cecil H. Bliss, University of Iowa, on "Developing a Pleasing Personality," and Wilbert J. Whiteman, University of Detroit, on "Principles of Retention for Bridge Retainers."

Nevada.—The annual meeting of the Nevada State Dental Association will be held May 12-13 in Las Vegas, according to L. G. Jacob, secretary.

Speakers on the program will include J. Eugene Ziegler, Los Angeles, on "Radiographic Interpretations"; Carl Rice, Los Angeles, on "Oral Surgery," and W. H. Burwell, Los Angeles, on "Acrylics."

Oklahoma.—The preliminary program for the annual meeting of the Oklahoma State Dental Society, to be held April 13-16 in Oklahoma City, has been announced by E. W. Wise, Tulsa, secretary.

Speakers at the meeting will include Roy J. Turner, governor of Oklahoma; Willard Ogle, trustee of the American Dental Association from the twelfth district; Sterling V. Mead, president of the American Dental Association; Warren P. Willman, Chicago; L. R. Main, St. Louis, and G. Thaddeus Gregory, Indianapolis.

Rhode Island.—New officers of the Rhode Island State Dental Society for 1947, who were elected at the recent state meeting, are: Norman Fortier, Pawtucket, president; Charles F. McKivergan, Providence, president-elect; Michael B. Messore, Providence, vice-president; Simon Ozarin, Newport, recording secretary; Donald D. Osborn, Providence, financial secretary; Archie A. Albert, Pawtucket, treasurer, and James F. Colgan, Pawtucket, editor.

Texas.—The sixty-seventh meeting of the Texas State Dental Society will be held April 28-30 and May 1 in the Municipal Auditorium, San Antonio, according to Willard Ogle, Dallas, secretary.

The Texas Society of Oral Surgeons and the woman's auxiliary of the state society will hold meetings during the state meeting, and a number of dentists from Mexico have been invited to attend. Guest clinicians will include Ralph B. Rode, St. Louis; Maynard K. Hine, Indianapolis, and Lester W. Boyd, Chicago.

WORLD DENTISTRY

LATIN AMERICAN FEDERATION TO HOLD CONGRESS IN OCTOBER

The Fifth Congress of the *Federacion Odontologica Latino Americana* will be held sometime next October in Buenos Aires, David M. Cohen, secretary of the organizing committee, has announced.

The Congress will be held in connection with the first Inter-American Congress of Dentistry. Other members of the organizing committee are: Juan Urbaldo Carrea, president, Juan B. Patrone, Hector F. Viala, José Mendez Ribas, Humberto Aprile, Raul Otano Antier, Guillermo A. Ries Centano, and Alberto H. Tagliabue.

DOCUMENTARY FOUNDATION REQUESTS DENTAL PUBLICATIONS

The *Fondation Documentaire,* Brussels, Belgium, has requested that all dental authors and publishers forward to it copies of all publications in the interests of the continuation of its work in filing, digesting and indexing material bearing on dentistry.

The Foundation, a nonprofit institution founded in 1929, is an international center for documentation associated with the International Dental Federation. At the foundation all material relating to dentistry is digested, indexed and cross-indexed, and a complete bibliography on any aspect of dental science is furnished on request.

The Foundation will prepare on request a complete set of references on any subject for the dental research worker. The bibliographic service charges are based on the amount of time required to comply with the request. Members of the Foundation receive a 20 per cent reduction on such charges.

The annual membership fee is $2 in American money. The title of protective member is given to anyone donating $40 to further the objects of the foundation.

Requests for further information and applications for membership should be addressed to the Fondation Documentaire, 133a, Rue Belliard (Parc Leopold), Brussels, Belgium.

SOCIETY FOR CHILDREN'S DENTISTRY FOUNDED IN CUBA

The formation of the Children's Dental Society of Cuba has been announced by the officers and members. The society has been created to promote the study of children's dentistry and to further the exchange of information among specialists and organizations in related fields.

Officers of the new organization are Carlos A. Criner Garcia, president; Francisco Leon Lara, vice-president; Miguel Sacerio Coro, secretary; Laura Canizares Verson, vice-secretary; Ernesto Cepero Bonilla, treasurer; Silvina Rodriguez, vice-treasurer, and Emma Gonzalez, librarian.

AUSTRALIAN DENTIST SEEKS ASSOCIATES FOR EXPEDITION

John Heath, honorary dentist at the Children's Hospital, Melbourne, Australia, and lecturer in orthodontia, University of Melbourne, has announced that he is looking for associates to accompany him on an anthropologic expedition to

central Australia to study malocclusion among the aborigines.

Dr. Heath is planning to visit Haast Bluff and Areyunga in central Australia in June 1947, to continue a study of the teeth of the natives. He has requested that dentists interested in accompanying the expedition write, via air mail, to Dr. John Heath, 5 Collins St., Melbourne, Australia.

AMERICAN DENTAL SOCIETY OF EUROPE TO MEET IN 1948

The American Dental Society of Europe has announced plans to hold its first annual postwar meeting in London, August 1948, immediately after the Olympic Games scheduled to take place in London in July of 1948. Inquiries may be addressed to K. C. Campbell, secretary, American Dental Society of Europe, 88, Portland Place, London, W.1.

DENTAL EDUCATION

PHYSICIANS, SURGEONS COLLEGE REPORTS ON RECENT ACTIVITIES

In District Nine of the American Alumni Council, which includes Arizona, California and Nevada, the Alumni Association of the School of Dentistry, College of Physicians and Surgeons, San Francisco, is the only dental school represented.

The School of Dentistry has reported the resignation of Edwin W. Schultz, professor of bacteriology and pathology, to take a full time post at Stanford University. A new member of the faculty is Paul Thommasen, instructor in bacteriology and pathology.

J. C. Geiger of the faculty has been awarded the gold medal of the French department of health and the Royal Order of Vasa, first class, by Sweden. E. F. Inskipp has been appointed to the board of contributing editors of the *Journal of the American College of Dentists,* and Don J. Aubertine has been appointed to a five year term on the Committee on International Relations of the American Dental Association.

Ernest G. Sloman, dean, recently served as clinician before the Northern California Society of Oral Surgeons, and Albert H. Throndsen conducted a full day course on local anesthetics for the postgraduate committee of the California State Dental Association. Jack Werner has been elected chairman of the North California Section, American College of Dentists.

OREGON MEDICAL SCHOOL OFFERS DENTAL INTERNSHIP

Charles N. Holman, medical director and administrator of the University of Oregon Medical School hospitals and clinics, has announced that the Medical School now offers a one year dental internship.

Appointments for the internship are made for the period beginning July 1 each year. Applications should be addressed to the Medical Director of Hospitals and Clinics, University of Oregon Medical School, 3181 S. W. Marquam Hill Road, Portland, Ore.

BUFFALO GIVES POSTGRADUATE COURSE IN ORTHODONTICS

The School of Dentistry, University of Buffalo, is now receiving applications for the postgraduate course in orthodontics, to be held during the academic year 1947-1948, Clifford G. Glaser, director of the Department of Orthodontics, has announced.

Applications must be filed by July 1. For further information, write to the Registrar, School of Dentistry, University of Buffalo, Department of Orthodontics, 219 Bryant St., Buffalo.

Photo by U. S. Army Signal Corps

Wins Legion of Merit

Maj. Gen. James A. Van Fleet awards the Legion of Merit to John J. Kohout, former army dental corps officer and chief, Plastic Eye Laboratory, Northington General Hospital, Tuscaloosa, Ala.

ARMY AND NAVY

NAVY TO HOLD EXAMINATION FOR APPOINTMENT TO DENTAL CORPS

The next examination for appointment as assistant dental surgeon, U. S. Navy Dental Corps, with the rank of lieutenant, junior grade, will be held July 14, Rear Admiral C. A. Swanson, Navy Surgeon General, has announced.

The examination will be held at the U. S. Naval Dental Clinic, Park and Vanderbilt Aves., Brooklyn; U. S. Naval Station, Norfolk, Va.; U. S. Naval Air Station, Alameda, Calif.; U. S. Naval Air Station, Pensacola, Fla.; U. S. Naval Training Center, Great Lakes, Ill.; U. S. Naval Training Center, San Diego, Calif., and the U. S. Naval Dental School, National Naval Medical Center, Bethesda, Md.

Applicants for appointment must be citizens of the United States, must be between 21 and 32 years of age and must possess a degree in dentistry. Applications for the examination will also be accepted from senior dental students who will be graduated prior to July 14.

Officers appointed as lieutenant, junior grade, in the Naval Reserve Dental Corps after December 31, 1946, must pass a competitive examination in order to qualify for appointment in the Dental Corps of the Navy. Reserve officers appointed before December 31, 1946, who have served six months of active duty, may apply for transfer to the Regular Navy without taking an examination, regardless of the date of discharge to inactive duty.

Applications for permission to take the examination for assistant dental surgeon must be submitted to one of the following Offices of Naval Procurement in time to be forwarded to the Bureau of Naval Personnel before June 14: Healy Bldg., P. O. Box 1364, Atlanta 1, Ga.; New Courthouse and Post Office Bldg., Boston 9; 321 South Plymouth Court, Chicago 4; Krozer Bldg., 35 East Seventh St., Cincinnati 2; Naval Air Station, Dallas, Texas; New U. S. Custom House Bldg., Denver; Book Bldg., 1249 Washington Blvd., Detroit; U. S. Courthouse, Ninth St. and Grand Ave., Kansas City 6, Mo.; Van Nuys Bldg., 210 West Seventh St., Los Angeles 14; Northwestern Bank Bldg., Seventh and Marquette Aves., Minneapolis 2; Federal Bldg., New Orleans 2; Federal Office Bldg., 90 Church St., New York 7; North American Insurance Bldg., 1600 Arch St., Philadelphia 3; Old Post Office Bldg., Fourth Ave. and Smithfield St., Pittsburgh 19; Ferry Bldg., San Francisco 11; 513 Arctic Bldg., 794 Third Ave., Seattle 4, and 1601 Eye St., Washington 25, D. C.

NAVY DENTAL OFFICERS MAY TAKE COURSES FOR M.S. DEGREE

Graduate courses at a university for the degree of master of science are now available to officers of the U.S. Navy Dental Corps. The opportunity for study for this degree is offered to enable the dental officer to obtain a broader background in the scientific foundations of

dentistry, according to a Navy announcement.

Courses required for the degree include anatomy, bacteriology, pathology, physiology, pharmacology and biochemistry. Study for the degree will take one year of full time work or two years of part time work. The selection of candidates will be made by a postgraduate board on the basis of existing records in the Navy Department.

NAVY TO RECALL VOLUNTEER DENTAL, MEDICAL OFFICERS

The Bureau of Medicine and Surgery of the U. S. Navy will recall to active duty reserve medical and dental officers now on inactive duty, pending action on applications for appointment to the regular navy. All return to active duty will be on a voluntary basis.

Under present ruling, officers are ineligible to apply for appointment to the regular navy after six months on inactive duty. Reserve officers of the Dental and Medical Corps who return to active duty after more than six months on an inactive status will regain their eligibility to apply for appointment to the regular navy.

Reserve officers interested in applying should write the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

THREE DENTISTS WIN AWARDS FOR MILITARY ACHIEVEMENTS

Three dentists have received awards for outstanding service with the Army Dental Corps, according to recent announcements. They are John J. Kohout, former lieutenant colonel, who won the Legion of Merit, and Capts. Morton T. Edwards and Sidney Gordon, both of whom received the Army Commendation Ribbon.

Dr. Kohout received his award from Maj. Gen. James A. Van Fleet, officer-in-charge, New York, New Jersey, Delaware Military District, at recent ceremonies in New York. The award was presented to Dr. Kohout for his service in planning the construction, organization and equipment of the Plastic Eye Laboratory, Northington General Hospital, Tuscaloosa, Ala.

"His achievements enabled hundreds of soldiers to return to society without a cosmetic deformity," the citation read in part. Dr. Kohout served as chief of the laboratory from October 1944 to November 1945. He was separated from service last February.

Captain Edwards received the commendation ribbon for outstanding performance of duty as dental surgeon of the 25th medical battalion between February and August 1946, and also as acting division dental surgeon between June and August 1946.

A citation signed by Maj. Gen. C. L. Mullins, Jr., commandant, 25th infantry division, Osaka, Honshu, read in part: "In addition to your regular duties you were instrumental in the organization and supervision of an excellent dental prosthetic laboratory which has capably served all troops of the twenty-fifth division. Lacking assistance, you worked tirelessly and long hours, completing prostheses with least possible delay, yet always in accordance with your own superior standards."

Captain Edwards has had continuous service in the Army since his graduation from the School of Dentistry, University of Louisville, in 1944. He has seen combat service in the Philippines and was with one of the first units to occupy Japan.

Captain Gordon won the commendation ribbon for outstanding service as base dental surgeon at Bergstrom Field, Austin, Texas, between December 1945 and June 1946.

A citation signed by Maj. Gen. Paul L. Williams, commander of the Third Air Force (Troop Carrier), read in part:

"Although deprived of approximately half the dental personnel necessary, Captain Gordon exhibited extraordinary personal competence in the operation of his section. Despite the fact that many of his off-duty hours were spent treating patients, Captain Gordon devoted additional time to the development of a soluble base for penicillin."

Captain Gordon is the author of "Penicillin Therapy in Acute Pericoronitis," which appeared in the November 1945 issue of THE JOURNAL, and has lectured on the use of penicillin to the Texas State Dental Society and the Austin District Dental Society.

PUBLIC HEALTH

DENTAL SURVEY PLANNED FOR BURLINGTON, N. J., CHILDREN

A preliminary dental survey of all children in Burlington, N. J., schools will be launched shortly under the supervision of the New Jersey Health Department and at state cost.

The plan provides for complete treatment of those children from 5 to 10 years of age whose parents cannot afford to take them to a dentist. Parents who prefer a private dentist will be advised of necessary treatment and directed to take the child to the family dentist. Children more than 10 years of age will be given emergency treatment.

J. M. Wisan, chief of the Division of Dental Health, New Jersey Health Department, explained the plan at a recent dental conference held by the Burlington public schools. The New Jersey program includes the matching of funds appropriated by each community for dental treatment and the conducting of a complete survey every five years to mark the amount and rate of improvement in dental health.

GENERAL NEWS

EASTER SEAL SALES TO AID CRIPPLED CHILDREN STARTED

The National Society for Crippled Children is again selling Easter seals to raise funds for aid to crippled children. Proceeds from the sale are used to provide medical aid, treatment and special teaching for handicapped children.

Easter seal returns last year showed a 26 per cent increase over the previous year, with receipts reaching $3,420,000. Contributions may be sent to the National Society for Crippled Children, 11 South La Salle St., Chicago 3.

TRIBUTE PAID TO DENTISTS BY ASSOCIATES AND SOCIETIES

A number of dentists and others connected with the profession of dentistry have been honored by their dental societies in the past months.

R. D. Dean, dean of the College of Dentistry, University of Tennessee, is having his portrait painted to be hung in the proposed new dental building at the University of Tennessee. The portrait fund was started by dental associates of Dr. Dean in the Tennessee State Dental Association.

L. H. Black and W. H. Hayden, both of Youngstown, Ohio, were honored recently at a dinner party held by the Croyden-Palmer Dental Society. Both dentists have completed more than fifty years of practice.

Dr. Black started practice in Youngstown in 1896 and Dr. Hayden in 1893. Dr. Hayden is a past president of the Ohio State Dental Association and past vice-president of the American Dental Association.

Abram Cohen, president of the Philadelphia County Dental Society, was guest of honor at a dinner held by the Board of Governors and the February Meeting

Committee of the Philadelphia County Society February 5. The dinner was held in conjunction with the opening sessions of the Greater Philadelphia Annual Meeting.

Mrs. Evelyn F. Eaton, executive secretary of the Massachusetts Dental Society, was guest of honor recently at the fiftieth anniversary meeting of the Metropolitan District of the Massachusetts Dental Society.

Mrs. Eaton was part time executive secretary of the state society and part time secretary of the Metropolitan District for twenty-two years. She has now assumed full time duties with the state society.

A. D. Preston, Scranton, Pa., was honored recently by friends and associates at a testimonial dinner at the Scranton Country Club. Dr. Preston has completed fifty-one years of practice in Scranton.

BOSTON DENTIST DEVISES TEETH-IDENTIFICATION SYSTEM

A system for identifying amnesia, explosion and drowning victims, as well as for aiding in the capture of criminals, has been devised by James E. Gibbons, Boston dentist who was in charge of dental surgery at the Chelsea Naval Hospital during the war.

Dr. Gibbons intends to seek legislation to have the system put into state institutions and to establish a state controlled identification "clearing house," according to recent reports.

The system, which consists of making and filing records on everyone's teeth, is similar to the fingerprint method of identification used by police and the Federal Bureau of Investigation. This process would permit identification of drowning and explosion victims, whose fingerprints, in many cases, are not available because of deterioration.

Dr. Gibbons devised the teeth-record system just after the United States entered the war, and offered it to the Navy. The Navy, he said, had a similar system, which was not as complete, but felt that it would involve too much work to change to a new system.

A member of the medical staff of examiners at Boston College, Dr. Gibbons has used his system there for the last two years to record the teeth and dental work of all students. He is a graduate of Harvard Dental School.

DENTIST REPORTS COMPANY METHODS IN BUYING SCRAP

J. A. Bauchert, El Paso, Texas, has reported to the American Dental Association a sale of gold dental scrap to the Vernon Gold and Refining Company, Pittsburgh.

Dr. Bauchert said that he received an empty carton through the mails from the company asking him to send in his scrap. He sent approximately eight ounces of cleaned gold scrap to the company and received a check for $116.10, less $5.50 refining charges. On inquiry, the company returned an additional check for $40 but never offered an explanation or a listing of the weight of gold sent in.

Dr. Bauchert has informed the Better Business Bureau in Pittsburgh of his dealings with the company.

CARL O. FLAGSTAD ESCAPES INJURY IN PLANE CRASH

Carl O. Flagstad, Minneapolis, chairman of the Committee on Legislation of the American Dental Association, was one of thirty-seven passengers aboard a Northwest Airlines plane who escaped safely when the plane broke its landing gear and burst into flames at the Chicago Municipal Airport recently.

Dr. Flagstad lost his luggage in the crash but escaped injury. He was en route to Washington, D. C., at the time of the accident.

REPORTS OF

COUNCILS AND COMMITTEES

RESEARCH COMMISSION

ADDITIONS TO LIST OF CERTIFIED DENTAL MATERIALS

SAMPLES of the certified dental materials listed below were recently tested by the American Dental Association Research Fellowship at the National Bureau of Standards under the supervision of that Bureau and were found to comply with the respective specifications of the American Dental Association. This list supersedes that published on page 1462 of the November 1, 1946, issue of THE JOURNAL.

Samples of materials recently certified by the manufacturer as complying with the respective specifications of the American Dental Association were tested by the American Dental Association Research Fellowship at the National Bureau of Standards under the supervision of that Bureau. These materials, which are listed on the following page, were found to comply with the specifications and should be added to those published on pages 1458-1462 of the November 1, 1946, issue of THE JOURNAL.

Certified Zinc Phosphate Cements (A.D.A. Specification No. 8, First Revision)

Cement	Mfr. or Distributor
Ames Z-M	The W. V-B. Ames Co.
Bosworth's Zinc	Harry J. Bosworth Co.
Caulk Crown and Bridge; Petroid Improved; Tenacin	The L. D. Caulk Co.
Certicem	Lee S. Smith & Son Mfg. Co.
Fleck's Extraordinary	Mizzy, Inc.
S-C	Stratford-Cookson Co.
Smith's	Lee S. Smith & Son Mfg. Co.
S. S. White Silver Improved; Zinc; Zinc Improved	The S. S. White Dental Mfg. Co.

Certified Silicate Cements (A.D.A. Specification No. 9)

Cement	Mfr. or Distributor
Ames Plastic Porcelain	The W. V-B. Ames Co.
Astralit	Premier Dental Products Co.
Baker Plastic Porcelain	Baker & Co., Inc.
DeTrey's Synthetic Porcelain	The L. D. Caulk Co.
Durodent Enamel	Oskar Schaefer
Smith's Certified Enamel Improved	Lee S. Smith & Son Mfg. Co.
S. S. White Filling Porcelain Improved	The S. S. White Dental Mfg. Co.

Certified Impression Compounds (A.D.A. Specification No. 3)

Compound	Type	Mfr. or Distributor
Kerr Grey	1	Kerr Dental Mfg. Co.

Certified Dental Mercuries (A.D.A. Specification No. 6)

Mercury	Mfr. or Distributor
Certified	Lee S. Smith & Son Mfg. Co.

Certified Hydrocolloidal Impression Materials (A.D.A. Specification No. 11)

Material	Mfr. or Distributor
Coe-Loid 66	Coe Laboratories, Chicago

ASSOCIATES EXPOSE DENTURE RELINERS, DEMONSTRATE SPIROCHETE CULTURE METHODS

FOLLOWING is a digest of the annual report of the Research Commission which was presented at the eighty-seventh annual meeting of the American Dental Association in Miami, October 14-16, 1946:

The reports of the research associates at the National Bureau of Standards in Washington, D. C., and the National Institute of Health at Bethesda, Md., demonstrate outstanding achievements.

The executive board of the Research Commission has planned for increased personnel in the research staffs. The return of George Paffenbarger to the National Bureau of Standards ensures a continuation of the program.

The U. S. Navy has lent the National Bureau of Standards equipment for a complete dental office for clinical experiments and demonstrations. The Commission plans to employ a full time clinical dentist at the National Bureau of Standards to correlate clinical and laboratory research on dental materials.

It is planned to add at least two men to the Bureau staff for routine testing of dental materials. It is also planned to have motion pictures made dealing with the value of specifications for dental materials.

The executive board has been assured by Rollo E. Dyer, director of the National Institute of Health, that the American Dental Association may have additional space for research, especially in the field of dental caries.

During the year, Harry E. Kelsey, of Baltimore, a member of the executive board, died. Chairman Huff appointed O. H. Moen of Watertown, Wis., to the vacancy.

Physical Research Program

The cooperative research on dental materials at the National Bureau of Standards for the fiscal year 1945-1946 included the testing of certified materials, the completion of a study of "liners" for dentures, continuation of the experiments on the wear occurring in resin teeth on dentures in service and further research on the denture base resins and the zinc phosphate cements.

Surveys of several of the lists of certified materials were undertaken to determine whether the products continued to comply with specifications. Samples of 106 materials were tested, and only two products failed to comply with the requirements.

In the study of the wear of resin teeth, stone replicas have been made periodically of the dentures in service. These replicas are to be used for measurement of the amount of wear. The effect of time, temperature and

pressure on the properties of the cured denture base resin has been studied.

The work on denture reliners carried on by John R. Beall and H. J. Caul, research associates at the National Bureau of Standards, has saved the dentist, the public and the government much trouble and expense.

Biologic Research Program

During the past year serologic investigation of the oral spirochetes was undertaken at the National Institute of Health. The spirochetes are associated with infections of fusospirochetal origin, but their etiologic significance is questionable.

The agglutination test was selected as the first method of approach. Eight strains of the smaller oral treponemes, three strains of Borrelia vincenti and four cultured strains of Treponema pallidum were employed. A liquid medium was developed for mass cultivation of the spirochetes for intravenous inoculation of rabbits. It consisted of 2.5 cc. of "hormone" liquid medium and 2.5 cc. of a 5 per cent solution of gastric mucin. It was enriched at the time of use by the addition of 0.5 cc. of ascitic fluid and 0.5 cc. of a 1 per cent solution of glutathione. Slants were prepared and the spirochetes were grown in the water of condensation formed at the butt of the tube. Sufficient organisms were obtained by this method to perform five to eight microscopic agglutination tests.

Rabbits were immunized with the various strains of spirochetes, and the organisms were tested against their homologous immune serums and were also cross agglutinated. The agglutination titers of immune serum when tested against homologous strains of spirochetes ranged between dilutions of 1:1,000 and 1:1,000,000, a finding which demonstrates that these organisms are highly antigenic.

During this period a medium was developed for the preservation of cultured strains of Bor. vincenti and T. pallidum by the lyophil process. The success obtained with this method makes it possible to store cultures of spirochetes indefinitely.

Another study is in process on the preservation of the Nichol's strain of T. pallidum by drying from the frozen state. This strain of spirochetes has been maintained only in rabbits and has never been successfully preserved by the lyophil process.

The work of Edward G. Hampp, the research associate at the National Institute of Health, is an outstanding contribution in the study of bacteria associated with Vincent's disease.—*M. D. Huff, Chairman; Daniel F. Lynch, Secretary.*

COMMITTEE ON LEGISLATION

STATE BILLS OF GENERAL INTEREST

Antivivisection. —Massachusetts H.1361 would regulate experiments with animals. S.47 would prohibit experiments and operations on living dogs and cats.

Wisconsin A.52 would amend the present law relating to cruelty to animals used for scientific experimentation and research and would provide a penalty for violation.

Boards of Health and Health Departments. —Arizona S.31 would abolish all state health and sanitation regulatory boards and place their function and administration under the State Board of Health.

Colorado H.380 would provide for the establishment and maintenance of county and district health departments. H.445 and S.82 would create a state department of public health and provide for the administration of public health laws.

Indiana H.25 would authorize second class cities and their counties to set up

city-county full time health departments and would require them to make per capita appropriations. H.140 would provide that the minority race representative on the State Board of Health need not be a physician; would empower the Board to employ an attorney, and would broaden the authority of the Board to receive gifts, grants and donations.

Minnesota H.150 and S.27 (companion bills) would reorganize the county health departments.

North Dakota H.52 would provide for the reorganization of state health departments.

Oregon S.78 would provide for district health units and district boards of health and would define their powers and duties.

West Virginia H.52 and S.52 (companion bills) would authorize the consolidation of all city and county health departments.

Wyoming H.20 would create a department of public health. H.26 would establish county and district health departments.

Cash Sickness Plans.—Indiana H.C.R.6 and H.C.R.7 would urge Congress to withdraw income tax exemption benefits from cooperative associations.

Massachusetts H.641, introduced by the United Electric Radio and Machine Workers; H.1446, introduced by the Massachusetts State C.I.O. Industrial Union Council, and H.1619, introduced by James A. O'Brien, each would establish a cash sickness compensation fund.

New Jersey A.61 would provide cash sickness benefits under the Unemployment Compensation Law.

New York A.79 and S.289 (companion bills) and S.212 and S.221 each would extend unemployment insurance to persons who are unemployed on account of sickness or accident disability which is not compensable under the Workmen's Compensation Law or under any plan or system established by the government or the employer. A.210 and S.222 would provide that total unemployment benefits shall continue during the claimant's illness or disability suffered after commencement of unemployment.

Education.—Massachusetts S.144 would provide for the construction of a new building at the Massachusetts State College to be used for instruction and research by the Department of Bacteriology and Public Health and as a health center by the State Department of Public Health. S.356 would create a special commission to study the need for a state university with an established medical center located in or near Boston.

New York A.98 would establish state victory medical colleges, one to be located in New York City and the other upstate; the bill directs the postwar planning commission to allocate funds for options and plans and provides that the regents shall prescribe rules for tuition-free scholarships in number equal to five times the number of senatorial districts. S.91 would establish in the education department a state victory medical college to be occupied for the instruction of 4,000 pupils; would authorize the postwar planning commission to allocate funds for plans and estimates, and would provide that the regents shall prescribe for tuition-free scholarships in number equal to five times the number of senatorial districts. S.293 and S.301 (companion bills) would establish in the education department a state victory medical college for the instruction of 4,000 pupils, to be located on the site to be selected by the Commissioner of Education, which may be adjacent to the state hospital.

Food and Drug Law.—New Mexico S.21 would enact a pure food, drug and cosmetic law.

Free Choice.—California A.290 and Oregon H.16, H.17, H.18, H.19, H.20, H.21, H.22, H.23 and H.24 each would give an injured workman free choice of a physician under the Workmen's Compensation Law.

New York S.566 would give an injured workman free choice of a duly authorized hospital under the Workmen's Compensation Law.

Hospitalization.—Indiana S.119 would permit the treatment of indigent patients in local hospitals, thereby removing the present requirement that they must be taken to the Indiana University Medical Center.

Pennsylvania H.40 would require the state to provide every state employee and their wives and husbands with hospitalization at the cost of the state.

Prepayment Plan.—Arkansas S.26 would prohibit anyone acting as an agent for an insurer unlicensed in Arkansas and would prohibit employers from collecting for group insurance or hospitalization for an insurer unlicensed in Arkansas. S.58 would require that group, life, health, accident and hospitalization insurance for employees who reside in Arkansas shall be placed with companies licensed in Arkansas and would make employers collecting money from employees an agent of the company.

California S.R.14 continues the Senate Interim Committee on public health insurance and prepayment medical and hospital insurance for the remainder of the session.

Kansas H.23 would eliminate from the policy of nonprofit hospitals any reference to the amount payable by the subscriber or the manner of payment. H.24 would eliminate a similar provision from nonprofit medical policies.

Maryland H.50 would provide minimum capital requirements to qualify for nonprofit prepayment health service insurance.

Massachusetts H.52 would provide for a special commission to revise, recodify and recommend necessary changes in the laws relating to nonprofit hospital service corporations and other insurance laws. H.749 would give to nonprofit hospital service corporations the same privileges in regard to taxation as are given to nonprofit medical service corporations. H.830 would eliminate the requirement of approval of certain rates of nonprofit hospital service corporations. H.1132 would provide for a voluntary system for the payment of hospital, surgical operation, sickness, bodily injury and maternity benefits to employees.

Montana H.62 would provide for the incorporation of nonprofit hospital service corporations.

New York A.66 would permit physicians to practice as partners or in groups or to pool fees received for professional services or to share fees in accordance with partnership or other agreements and would require the filing of certificates of assumed name. A.493 would establish a health insurance board in the health department and would create a state advisory medical policy council to provide adequate medical care for all residents of one year or more. A.661 would permit a nonprofit medical indemnity or hospital service corporation to employ or contract with a licensed physician to practice medicine on its behalf for persons insured under its contracts or policies. A.662 would permit partners or groups of physicians who have an agreement with nonprofit medical indemnity or hospital service corporations to provide medical care for insured persons.

Utah S.34 would create an insurance code, to be administered by the insurance department, and would provide for the organization, licensing, examination, regulation and supervision of nonprofit hospital service companies and all other companies and associations doing an insurance business.

Veterans.—South Dakota S.32 would provide for the reinstatement of the licensing of veterans to practice or engage in business or professions.—*George H. Fox, Secretary.*

AMOUNT OF INSURANCE IN FORCE INCREASES $6,000,000 IN TWO YEARS

FOLLOWING is a digest of the annual report of the Committee on Insurance which was presented at the eighty-seventh annual meeting of the American Dental Association in Miami, October 14-16, 1946:

Two years ago the total amount of insurance in force was $25,000,000. The insurance on June 1, 1946, amounted to nearly $31,000,000, which included approximately $3,500,000 of bonus insurance voluntarily granted by the insurance company.

The bonus insurance granted by the Great-West Life Assurance Company amounts to 12½ per cent and will continue through June 30, 1947, so that the amount provided in each insured member's certificate is increased by 12½ per cent during the period of the grant. (The bonus insurance grant was increased to 15 per cent on January 1, 1947.)

Since the American Dental Association group insurance includes a double indemnity accidental death provision as a permanent addition to the coverage, the amount payable to the beneficiary in some accidental death claims totals $6,750.

Total payments through the group insurance plan now exceed $3,500,000.

The American Dental Association group insurance program is in the most healthy condition in its entire history, and its future is also the brightest since its inception.—*A. D. Weakley, Chairman.*

Australian Medical Care Service.—In its eighth interim report the Australian Joint Committee on Social Security presented its final recommendations on medical care. The Joint Committee records general approval of the findings and suggestions of the Medical Planning Committee, a subcommittee of the Social Security Health Services Conference held in Canberra in December 1943. The Medical Planning Committee stresses the necessity of integrating the practice of preventive and of curative medicine and of cooperation between the medical profession and the general public, and, wherever the constitutional power may lie, between the Commonwealth and the states.—*Internat. Labour Rev. 53:266-269 (March-April) 1946.*

CURRENT LITERATURE

Penicillin in the Oral Therapy of Vincent's Angina and Acute Follicular Tonsillitis. E. S. Hopp. Arch. Otolaryng. 44:409, October 1946.

Twenty-five patients were treated for Vincent's infection with penicillin sodium in gelatin capsules, 10,000 units each, one being given every two hours for ten doses. Cure was obtained in twenty-four hours. Thirty-seven patients were treated similarly for acute follicular tonsillitis, with the body temperature falling to normal in twenty-four hours and marked symptomatic relief. Cure was obtained in three to five days. Further study is required to determine the minimal dosage that will effect the same good results.—*E. R. Costich.*

Leukoplakia (Leukokeratosis) of the Palate, Papular Form. Its Relation to the Use of Tobacco. C. L. Cummer. J.A.M.A. 132:493, November 2, 1946.

The manifestations of leukoplakia on the palate are not always similar to those on the buccal mucosa. The papular form presents a striking clinical picture. In this form there are gray flat-topped papules or red hemispheric papules. The histologic observations include thickening of the epithelium with hyperkeratosis and dyskeratosis, elongation and thickening of the rete pegs, usually accompanied by capillary enlargement in the papillary bodies, and a moderate degree of inflammatory change in the dermis.

Practically all reported cases have been in men, almost all of whom were smokers, especially of the pipe. Syphilis does not seem to be a causative agent. The condition has been cleared up in some cases by abstention from the use of tobacco, and in others a protective denture placed over the palate has helped. The prognosis is good, since no malignancy developed in the small number of recorded cases.—*E. R. Costich.*

Arterial Supply of the Mandible. A. MacGregor. Proc. Roy. Soc. Med. 39:347, April 1946.

The main arterial supply of the mandible is derived from the inferior dental artery on each side, and according to older writers there is little anastomosis across the mid-line of the mandible. The survival of fragments of bone after fracture was, in consequence, assumed to be due entirely to the arterial supply derived from the numerous muscular attachments to the bone. The view that no anastomosis occurred between the two dental arteries was tested on the mandible of a patient who died after mandibular fracture in the lower left molar region. Carmine gelatin was injected into the inferior dental artery of the intact side, and trypan blue gelatin was injected into the fractured side. On section it was apparent that the trypan blue gelatin extended to the site of fracture in the blood vessels of the posterior fragment of the left side and that the carmine gelatin was present in those of the right side and left side as far back as the site of fracture. It was clear, therefore, that an anastomosis across the mid-line must have been present.—*J. E. Gilda.*

A Report of the Dental Department of the Sixth General Hospital Organized from the Dental Department, Massachusetts General Hospital. Robert G. Rae, Somers H. Sturgis and Daniel J. Holland, Jr., with an introduction by Kurt H. Thoma. Am. J. Orthodont. & Oral Surg. 32:597, October 1946.

This article constitutes a report of the war service of a group of dentists from the Massachusetts General Hospital who conducted major oral and maxillofacial clinics in Europe and North Africa as well as in military hospitals in this country. Descriptions are given of the various types of gunshot and shell wounds about the face and of maxillary and mandibular fractures. The treatment of their conditions is outlined, and roentgenograms show the manner of splinting and suturing.

Some of the most devastating facial wounds were caused by mines. The explosions drove dirt, wood, fragments of metal and other foreign bodies into the face, neck, hands and even the trunk and lower extremities. Ruptured ear drums, loss of vision in one or both eyes and facial paralysis were frequent sequelae. The jaw fractures were usually severe, and the ragged contaminated wounds of the soft tissues were most disfiguring.

Fractures of the symphysis of the jaw were treated by the British open method and

bridged by cast metal splints or labial arch bars, the intermaxillary relationships being fixed. These fractures were slow to heal, requiring eight to twelve weeks of fixation.

In fractures of the angle of the jaw the methods of Fry, Shepherd, McLeod and Parfitt were used. The method of choice consisted of open reduction and direct wiring. All condylar fractures were treated conservatively without open reduction. It was demonstrated that efficient jaw function was not dependent on a perfect positioning of the head or neck of the condyle. Fibrous joints usually afforded efficient mastication without unfavorable sequelae.

It was found that for the majority of fractures simple intra-oral wiring afforded satisfactory results. In the cases of more severe fractures, open reduction and coaptation of jaw fragments by transosseous wiring or bone plating gave excellent results without causing postoperative infection of the bone. Chip bone grafts from the ilium and chemotherapy were standard procedure. When there was a primary closure of soft tissue wounds, severe sepsis, respiratory complications and subsequent deformities were rare.

In a number of cases extreme prognathism was reduced by mandibular resection with good results. The use of plastic grafts for the restoration of a lost symphysis was also reported.—*R. W. B.*

An Investigation into Certain Tongue Changes in British Troops. B. H. Smith. Brit. M. J., No. 4474, October 1946, p. 489.

Macroscopic tongue changes were observed in British troops that had been in India or at the Burma front for two years (761 men) and in troops newly arrived in India from the United Kingdom (2,390 men). All examinations were made in good light, both with the naked eye and with the aid of an X6 lens. The principal features of the tongue lesions are described in some detail and are designated as fissuring, three types of epithelial changes and papillary changes. Of the group from the United Kingdom, 10 per cent showed tongue lesions, and the group at the Burma front showed an incidence of 14.7 per cent, a difference which was found to be statistically significant by the X^2 test. Eighty men were divided into two groups and men showing similar tongue changes were paired off. One group received no vitamin supplements. Thirty of the other group received a supplement of five vitamin tablets (each tablet containing thiamin, 1 mg.; riboflavin, 1 mg.; niacin, 10 mg., and ascorbic acid, 25 mg.) a day for twenty-four days. Ten soldiers received a supplement of five lactoflavin tablets (each containing 1 mg. of riboflavin) a day for fifteen days. All men subsisted on the same scale of rations and lived under comparable conditions. No significant alteration was observed as a result of the therapy. It was considered that the tongue changes were not caused by deficiencies of the vitamins administered.—*J. E. Gilda.*

A Comparative Study of the Innervation of the Epithelium of the Gum. W. Lewinsky and D. Stewart. Proc. Roy. Soc. Med. 39:348, April 1946.

The comparative innervation of the gingival epithelium in the sheep, mole, rabbit, rat, mouse, ferret and man is discussed. Material was stained by the modification of Cajal's method devised by Gooding and Stewart. After staining, specimens were embedded in paraffin and cut into serial sections 12 micra thick. Intra-epithelial fibers can be divided into five distinct groups: Type I: single fibers arising from bundles in the deeper layers of the connective tissue and running directly into the epithelium; Type II: single or several fibers arising as in Type I but running for a distance along the epithelial connective tissue border before they enter the epithelium; Type III: fibers arising from superficial subepithelial plexuses; Type IV: fibers arising from intrapapillary plexuses; Type V: single or several fibers arising from intrapapillary coils situated at the apexes of the papillae. The differences in occurrence of various fibers in the animals mentioned above are discussed.—*J. E. Gilda.*

Acute Secondary Parotitis. W. A. Altemeier. Surgery 20:191, August 1946.

Acute secondary parotitis is considered to be an uncommon but serious nonspecific infection of the parotid glands. It is caused by pyogenic bacteria, and a high mortality rate is recognized because the disease tends to occur in debilitated patients. The incidence is between 0.04 and 0.74 per cent among patients subjected to major operations. "Occasionally cases are hematogenic in origin, but most of them are undoubtedly the result of an ascend-

ing infection along Stensen's duct from a mouth which is dirty. . . . "

Prophylaxis is dependent on effective treatment of any existing primary disease, correction of metabolic disturbances and elimination of poor oral hygienic conditions, all of which may be predisposing factors. Methods of treatment that have been used are classified as symptomatic, surgical, radiotherapy, dilatation and chemotherapy.

Forty-nine cases are reviewed, in all but two of which the disease occurred in persons debilitated by some primary injury or disease. One of the most obvious associated factors was poor oral hygiene. Lugol's solution, given orally and in smaller supplementary amounts by hypodermoclysis, intravenous infusion or proctoclysis, appeared to give good results in the treatment of forty-five of the patients. No evidence of iodine poisoning was seen. Penicillin alone, or in conjunction with Lugol's solution, appeared to give promising results in five cases. —*D. F. Mitchell.*

Fractures of the Malar-Zygomatic Compound. M. B. Stewart and J. J. Conley. Arch. Otolaryng. 44:443, October 1946.

This paper briefly reviews the history of fractures of the malar-zygomatic compound and emphasizes the most popular treatment methods in use at the present time. Except when there are serious complications or infection, reduction of these fractures in the hands of experienced operators is simple and expedient. Post-traumatic deformities are usually caused by improper diagnosis and lack of treatment. Proper investigation of the injuries to the face and jaws with interference in mastication and local tenderness entails the use of roentgen examination. Usually no further information is necessary. Greater harm results when these fractures are allowed to unite in malposition; then more formidable measures must be employed. Almost routinely, for the past five years, the authors have used the temporal approach for reduction of zygomatic fractures.—*E. R. Costich.*

Unilateral Hyperplasia of the Mandibular Condyle. M. A. Rushton. Proc. Roy. Soc. Med. 39:431, May 1946.

Two cases of unilateral hyperplasia of the mandibular condyle are described. The usual signs are: elongation of the ascending ramus on the affected side, the enlargement of the condylar head and neck but not of the coronoid process, an open bite of the posterior teeth on the affected side and an overclosed shearing bite on the other side. In both cases marked improvement was obtained by excision of the condylar head. The literature is examined critically and the data are tabulated according to sex and age, age when deformity was noticed and the nature and degree of the deformity.—*J. E. Gilda.*

Discussion on Dental Structure and Dental Caries. E. B. Manley. Proc. Roy. Soc. Med. 39:637, August 1946.

Small experimental exposures were made into the pulps of human bicuspid teeth. The powdered fragments of dentin were collected and replaced over the exposed surface of the pulp. The cavity was then sealed with zinc oxide and clove oil paste. The teeth were later extracted and serial sections prepared. Powdered dentin particles had been carried into the pulp and the pulp had laid down calcified material around these particles and had formed a compact mass of callus in an attempt to seal off the exposed area. The vitality of the pulp tissue was impaired by treatment with phenol but not by the use of hydrogen peroxide.—*J. E. Gilda.*

In Vitro Experimentation with Penicillin Against Treponema Vincenti. Harry S. Klein, Stockholm. Särtryck Ur Svensk Tandhäkare-Tidskrift, 1945.

The author, working in the Från Statens bacteriologic laboratories in Stockholm, carried on *in vitro* experimentation with penicillin to determine its effect on Borrelia vincenti. He grew the spirochetes artificially, in the manner previously described by him, and applied penicillin in various dilutions. Even in the highest dilutions he found that in mouth smears the spirochetes were killed, although other organisms found in the mouth were resistant. In pure cultures of B. vincenti all were killed. He also reported highly beneficial results from the use of penicillin in the treatment of Vincent's infection. He concludes that penicillin sodium is a specific mouth spirochete poison. Since, as the author has previously pointed out, B. vincenti is one of the most important bacterial factors in gingival and periodontal diseases, penicillin is a valuable therapeutic agent for these conditions. —*R. W. B.*

LIST OF DENTAL OFFICERS

SEPARATED FROM ARMY DENTAL CORPS

THE following list of dental officers separated from the Army Dental Corps does not include rank because such information is no longer furnished by the Surgeon General's Office. Publication will be given to other names as soon as possible.

Alabama	
Birmingham	Boblasky, Harry
Birmingham	Farmer, William H.
Arizona	
Phoenix	Dobbs, Rose W.
Arkansas	
Little Rock	Couch, Lonnie C.
Lonoke	Fletcher, William T.
California	
Atherton	Parr, John T.
Berkeley	Carr, Harold H., Jr.
Beverly Hills	Friedman, Louis J.
Calexico	Cassell, Richard L.
Cloverdale	Chase, William P.
Compton	Dummit, Bill L.
Fort Jones	Hovenden, Ernest H.
Long Beach	Roth, Milton R.
Los Angeles	Ashjian, Leon H.
Los Angeles	Cimring, Harry
Los Angeles	Dorshkind, Charles M.
Los Angeles	Duque, Oscar S.
Los Angeles	Esnard, John M.
Los Angeles	Furstman, Lawrence L.
Los Angeles	Levine, Samuel A.
Madera	Mugnolo, Arthur A.
Monterey	Cuva, Charles A.
Oakland	Dietz, Bernard
Oakland	Fitzgerald, Edward P.
Sacramento	Caselli, Orlando J.
Sacramento	Clark, Andrew J.
Sacramento	Veon, Harvey B.
San Bernardino	Dowd, Thomas J.
San Francisco	Aguado, Frank F.
San Francisco	Bennett, Gordon H.
San Francisco	Brown, Samuel
San Francisco	Brucia, Frank A.
San Francisco	Butler, James A.
San Francisco	Cadosi, Philip L.
San Francisco	Erpf, Stanley F.
San Francisco	Keefee, Robert D.
San Francisco	Quiros, George
San Francisco	West, Eugene E.
San Mateo	Buckman, Thomas F.
San Mateo	Sandidge, George H.
Santa Monica	Cousin, Martin R.
Stockton	Schroebel, Orval H.
Stockton	Yelland, Edward P.
Colorado	
Denver	Bartlett, Joseph D.
Denver	Butler, Velden R.
Denver	Cass, Edward E.
Denver	Duhrsen, Lowell R.
Denver	Humphrey, William P.
Denver	Mulford, Warren E.
Greeley	Otoupalik, Josef R.
Hotchkiss	Baldridge, Dwight L.
Idaho Springs	Coughlin, Fred R.
Steamboat Springs	Albers, Virgil G.
Connecticut	
Bridgeport	Cohen, Irving J.
Bridgeport	Friedman, Julius W.
East Hampton	Davis, Jay S.
Hartford	Bourke, Jacob
Hartford	Eff, Leo
Hartford	Erlenbach, Franklin M., Jr.
Hartford	Friedman, Max
Hartford	Kaller, Harold M.
New Haven	Braffman, William
New Haven	Cammarano, Frank P.
New Haven	Lazaroff, Morton
Stamford	Fahey, Bartley A.
Torrington	Cianciolo, Lawrence
Wallingford	Cascio, Carmel M.
Waterbury	Cofrancesco, Richard E.
Wilton	Vosilus, Vitot J.
Windsor	Shurtleff, Eugene M.
Delaware	
Wilmington	Baker, James C.
District of Columbia	
Washington	Bogan, George F.
Washington	Feldman, Samuel
Florida	
Bradenton	Floyd, Alton B.
Lantana	Bond, Stanley L.
St. Petersburg	Finley, Ferber A., Jr.
Georgia	
Porterdale	Cohen, Herbert
Hawaii	
Honolulu	Ching, Herman Y. C.
Illinois	
Bloomington	Irwin, Lawrence M.
Calumet City	Downey, Raymond C.
Charleston	Cauldwell, Russell W.
Chicago	Ahnger, Theodore C.

Chicago	Altheim, Irwin J.
Chicago	Amaturo, Frank M.
Chicago	Andrews, Andrew S.
Chicago	Bunta, Joseph D.
Chicago	Burke, Richard J.
Chicago	Coughlin, Joseph P. V.
Chicago	Courts, John J.
Chicago	Dale, Edward F.
Chicago	DeBiase, James
Chicago	Dietz, Victor H.
Chicago	Duggan, Edward J.
Chicago	Epstein, Harold H.
Chicago	Fein, Maurice
Chicago	Findel, Solomon
Chicago	Friedrich, Louis A.
Chicago	Golding, Alvin F.
Chicago	Leavitt, Julius M.
Chicago	Mayr, Hugh F.
Chicago	Olson, Harry F.
Chicago	Perlowski, Sigmund A.
Chicago	Ryll, Dennis J.
Chicago	Slavin, Leonard A.
Chicago	Szymanski, Edward I.
Chicago	Walty, Lloyd R.
Chicago	Welk, George H.
Chicago	Woldman, Sam L.
Chicago	Ziolkowski, Joseph
Danville	Buford, Charles D.
Elmhurst	Greenway, Edward F.
Granite City	Coleman, Leo M.
Joliet	Blatchley, Robert P.
Joliet	Furlong, Lawrence D.
Mt. Vernon	Bean, Earl C.
Northbrook	Therrien, John H.
Oak Park	Cihlar, Weslynn B.
Pekin	Ryan, William F.
Riverside	Braun, Leslie J.
Rockford	Ellman, Martin M.
Roseville	Astrin, Samuel L.
St. Louis	Elevick, Walter
Springfield	Lewis, Lloyd T.

Indiana

Greenfield	Allen, Paul A.
Indianapolis	Baldwin, George M.
Indianapolis	Micheli, William D.
Indianapolis	Yates, John H.
Shelbyville	Arbuckle, Robert B.
South Bend	Domonkos, Lewis G.
Sullivan	Sevier, Noble H.
Terre Haute	Klotz, Melvin M.
Walkerton	Clark, Robert R.
West Point	Taylor, Ray M.

Iowa

Davenport	Elerick, George R.
Des Moines	Aronow, Albert W.
Farmington	Courtney, Stanley N.
Maquoketa	Dalchow, Marvin A.
Monticello	Intlekofer, James M.
Sheffield	Andersen, Ralph C.
Waterloo	Raecker, Arlyss M.

Kansas

Atchison	Alexander, L. D.
Clay Center	Alquist, Raymond V.
Dodge City	Bissing, Al M.
Ft. Scott	Cooper, Calvin M.
Liberal	Hatfield, Orville L.
McPherson	Dean, Galen R.
Mahaska	Arnold, Paul
Manhattan	Creighton, James L.
Salina	Swenson, Richard A.
Topeka	Cook, Harry H., Jr.
Troy	Albers, John A.
Wichita	Baba, Mike J.
Wichita	Funke, Theodore A.

Kentucky

Frankfort	Bondurant, John K.
Louisville	Block, Louis S.
Louisville	Bowen, Richard P., Jr.

Louisiana

New Iberia	Tilly, Wilton P., Jr.
New Orleans	Burns, Charles R.
New Orleans	Rutledge, Joseph E.
Plaquemine	Cazes, Lawrence O., Jr.
Sunset	Bienvenu, Patrick X.
Vivian	Ferguson, William H.

Maine

Boothbay Harbor	Abelon, Harry

Maryland

Baltimore	Brotman, Alfred
Baltimore	Burton, Wilbur D., Jr.
Baltimore	Cooper, Harry W.
Baltimore	Lacher, George M.
Frederick	Everhart, David G., Jr.

Massachusetts

Athol	Barton, Roger D.
Beverly	Frasca, Michael J.
Boston	Gordon, George
Boston	Smith, James S.
Boston	Zase, Selig G.
Cheshire	Archibald, Frank W.
Clinton	Powers, John J.
Dorchester	Cohen, Mitchell M.
Fitchburg	Aijala, Armas J.
Marblehead	Bailey, Harry K.
Newtonville	Miner, Robert C.
Roxbury	Becker, Benjamin
Roxbury	Cooper, Clifton B.
Roxbury	Foley, Charles E.
Worcester	Dworkin, George S.
Worcester	Elias, George S.

Michigan

Ann Arbor	Cook, Harry
Benton Harbor	Berliner, Sidney S.
Detroit	Bahorski, Chester A.
Detroit	Cohen, Abraham L.
Detroit	Forman, Jack Y.
Detroit	Frankfurth, William C.
Detroit	Golden, Harold
Detroit	Guzinski, Alphonse S.
Detroit	Katz, Arthur C.
Detroit	Schneider, Warren
Grand Rapids	Chamberlin, Thomas W.
Grand Rapids	Fuller, Bruce F.
Hamtramck	Dereczyk, Adolph A.
Iron Mountain	Blum, Harold J.
Marquette	Collins, Joseph B.
Marshall	Dodge, Warren S.

Minnesota

Cold Spring	Schleppenbach, Raymond J.
Jackson	Anderson, Leslie R.
Minneapolis	Bong, John N.
Minneapolis	Braasch, William F.
Minneapolis	Drake, Horace L.
Sleepy Eye	Dumke, Melvin P.

Mississippi

Hattiesburg	Askew, John W., Jr.

Missouri

Belton	Miles, James P.
Brunswick	Lynch, Arthur A.
Cape Girardeau	Chism, Harold E.
Garden City	Schmidt, Paul W.
Green Meadows	Franco, Armand A.
Independence	Frisby, Albert V.
Jefferson City	Friend, Cyril L.
Kirkwood	Wolf, Charles L.
Lemay	O'Brien, Norvel L.
St. Louis	Benson, Samuel L.
St. Louis	Borgwald, Edward M.
St. Louis	Brodhage, Elmore E.
St. Louis	Campbell, Forrest S.
St. Louis	Davis, William C.
St. Louis	Dietrich, Arthur J.
St. Louis	Eckardt, Walter L.
St. Louis	Frost, John R.
St. Louis	Kegel, Anthony J.
St. Louis	Murrah, Raymond J.
St. Louis	Scott, Willard J.
Sikeston	Chidester, Thomas L.
University City	Barnholtz, Isadore

Montana

Butte	Dougherty, Leo J.
Helena	Betzner, Theodore C.
Ronan	Gordon, Carey H., Jr.

New Jersey

Bayonne	Burik, Paul J.
Camden	Artis, Saul S.
Clifton	Czaplicki, Eugene J.
Dumont	Lampert, Abe
Dunellen	Collins, James F.
E. Orange	Amer, Eli L.
Fords	Deutsch, David
Hoboken	Becker, Edward
Irvington	Zoller, Arthur
Jersey City	Carbone, James F.
Jersey City	Masterson, Martin F.
Linden	Arnold, George A.
Midland Park	DeRose, Frank J.
Newark	Brucker, William H.
Newark	Chausmer, Aaron
Newark	Delabar, William G.
Newark	Dimond, Howard D.
Newark	Doben, Louis A.
Newark	Eckel, Philip
Newark	Fagan, Lawrence S.
Newark	Fishman, Nathan W.
Newark	Furie, Jacob L.
Newark	Gesten, Alexander
Newark	Goldstein, Milton
Passaic	Minkin, Oscar
Passaic	Simkin, Morris
Paterson	Adler, Ben T.
Paterson	DeYoung, George M.
Paterson	Dross, Cornelius W.
Paterson	Kenwood, Albert L.
Pitman	Fleck, Edward H.
Plainfield	Mintz, Milton D.
Roselle	Battaglia, James D.
Trenton	Lavine, Bernard S.
Vineland	Cunningham, Russell B.

New York

Bronx	Cohen, Isidore I.
Bronx	Dimond, Norman
Bronx	Douglas, Max H.
Brooklyn	Acquista, Charles
Brooklyn	Caress, Nathan
Brooklyn	Citrin, Arnold J.
Brooklyn	Dalwin, John J.
Brooklyn	Danziger, Frederick
Brooklyn	David, Stanley J.
Brooklyn	Del Rey, Silvio A.
Brooklyn	Diner, Harry
Brooklyn	Disick, David
Brooklyn	Dorman, Bernard B.
Brooklyn	Epstein, Oscar L.
Brooklyn	Fagen, Hyman R.
Buffalo	Cutler, Alvin B.
Buffalo	Epstein, Leon I.
Glens Falls	Colson, Palmer K.
Jackson Hgts.	Cavanagh, John F.
Jackson Hgts.	Elson, Henry
Lackawanna	Chlosta, John J.
Lockport	DeLange, Robert A.
Mt. Vernon	Dente, Carmine J.
New York	Caldwell, Harlowe E.
New York	Calem, Sidney H.
New York	Charlat, Sidney A.
New York	Chasan, William S.
New York	Chernick, Samuel
New York	Chernow, Abraham
New York	Cohen, Eli
New York	Doob, Frederick T.
New York	Doscher, Frederick S.
New York	Edelson, Jerome
New York	Einzig, Robert
Rockaway Beach	Dubrow, Hyman
Seneca Falls	Daugenti, Caesar J.
Schuylerville	Campbell, Daniel J.
Waverly	Donlin, Donald J.
Williamsville	Bain, Ward D.
Woodhaven	DiMaria, Nicholas

Ohio

Canton	Mulne, Alvin S.
Canton	Pfouts, Samuel W.
Chillicothe	Marr, Thomas E.
Cleveland	Abrams, Bernard L.
Cleveland	Barbone, Albert P.
Cleveland	Bunkelman, Karl
Cleveland	Obenauer, Robert P.
Cleveland	Rabine, Milton
Cleveland	Rubin, Milton
Cleveland	Schroeder, Edward A.
Cleveland	Tillman, Kenneth E.
Columbiana	Forbes, Robert S.
Columbus	Arbaugh, Henry W.
Columbus	Miller, Joseph C.
Columbus	Pfeiffer, Lewis C.
Columbus	Wilson, John R.
Georgetown	Ludy, Charles T.

Hillsboro	Ambrose, Donald L.
Mingo Junction	Brettell, James H.
Minster	Westerheide, Francis X. J.
Oxford	Mosbaugh, Richard K.
Springfield	Dredge, Howard Z.
Tiffin	Silverman, Roland E.
Toledo	Bueche, Elden C.
Toledo	Conn, Melvin
University Hgts.	Meckler, Eugene M.
Uhrichsville	Pringle, Thomas
Urbana	Poffenberger, John W.
Warren	Williams, William J.
Willoughby	Penfield, Ronald W.
Wilmington	Conner, Harold H.
Youngstown	Greenberg, Milton E.
Youngstown	Parillo, John A.

Oklahoma

Konawa	Dailey, Fern M.
Lindsay	Crawford, Joy J.
Norman	Cole, John B.
Oklahoma City	Barnes, Embry R.
Oklahoma City	Cornett, Jesse J.
Oklahoma City	Doll, Ronald C.
Oklahoma City	Doyle, William H.
Oklahoma City	Saul, Emzy B., Jr.
Oklahoma City	Weir, William J.
Oklahoma City	Yeager, Richard J., Jr.
Quinton	Thomas, James A.
Wilburton	Donathan, Jack
Wynne Wood	Barrett, Samuel M.

Oregon

Aloha	Wheeler, Wallace R.
Bend	Aplin, Lowell W.
Portland	Albrich, Louis E.
Portland	Bojinoff, Sam A.
Portland	Frazier, Harold N.
Portland	Greif, John V.
Portland	Guild, Arthur D.
Portland	Hampton, Norman C., Jr.
Portland	Johnson, Rulon H.
Portland	Joseph, Fred E.
Portland	Kelty, George G.
Portland	Nichol, Ernest R.
Portland	Petersen, Robert F.
Portland	Vose, Burget A.
Taft	Alden, Alfred S.
Union	Baker, Herb W.

Pennsylvania

Allentown	Albright, Samuel W.
Coatesville	Giess, Malcolm H.
Coraopolis	Marshall, Robert W.
Erie	Lay, James P.
Farrell	Applebaum, Louis A.
Latrobe	Sweeney, Paul B.
McKees Rocks	Davis, John H.
Monessen	Palmer, Ralph E., Jr.
Montgomery	Dunleavy, Matthew S.
Nanticoke	Gordon, Daniel
Norristown	Capone, Gennaro A.
Philadelphia	Baer, Alexander
Philadelphia	Brennan, Edward J.
Philadelphia	Brown, Bertram B.
Philadelphia	Castaldi, Feliciano V.
Philadelphia	Cutler, Isadore
Philadelphia	Freedman, Nathan B.
Philadelphia	Giza, Walter H.
Philadelphia	Goldschmidt, Joseph C.
Philadelphia	Gorelick, Benjamin A.
Philadelphia	Haskins, Samuel
Philadelphia	Koltisko, Edward J.
Philadelphia	Krepliak, Edward
Philadelphia	Mamlin, Abraham W.
Philadelphia	Oltman, Jerome X.
Philadelphia	Penzur, Leon N.
Philadelphia	Skillen, James R.
Philadelphia	Zoole, Asher
Plymouth	Janowski, Edward H.
Upper Darby	Crandall, Robert A.

Texas

Beeville	Molak, Leo E.
Dallas	Paule, Mitchell M.
Fort Worth	Bradford, Harold B.
Hillsboro	Gill, Henry A.
Houston	Taylor, Woodrow W.
Temple	Winston, Maurice L.
Tyler	Cole, Oscar N., Jr.

Utah

Heber	Montgomery, Francis C.
Provo	Morgan, David

Virginia

Bishop	Crockett, Eugene V.
Richmond	Reid, Leon A., Jr.

Washington

Bellingham	Winters, William G.
Ritzville	McBean, Marvin R.
Seattle	Ballard, Leland C.
Seattle	Ballard, Lucius A.
Seattle	Leib, Charles A.
Seattle	Morford, Leroy C.
Seattle	Volin, Russell L.
Spokane	Currier, Claude R.
Yakima	Whittaker, Raymond E.

West Virginia

Charleston	Franz, Anatol F.
Clarksburg	Clifford, James
Huntington	Chetwin, Joseph B.
Parkersburg	Musaph, Hans
Waverly	Corbitt, Donald C.
Wheeling	Block, Herman S.

Wisconsin

Barton	Berger, Earl G.
Madison	Smith, Hugo G.
Milwaukee	Bergner, Kenneth F.
Milwaukee	Berman, Herbert A.
Milwaukee	Keating, James T.
Milwaukee	Kubal, Eugene J.
Milwaukee	Rubenstein, Sidney I.
Waukesha	Williams, Lowell E.

Wyoming

Gillette	Wade, Robert E.

LIST OF DENTAL OFFICERS

SEPARATED FROM NAVY DENTAL CORPS

THE following naval dental officers have been separated from service, according to lists received from the Navy Department. These lists are not complete. Other names will be published as soon as possible.

Alabama		
Anniston	Leyden, Paul M.	Lieut.
Arizona		
Glendale	Miller, Kenneth R.	Lieut.
California		
Claremont	Simpson, H. B.	Lt. Cmdr.
Kerman	Moore, DuWayne C.	Lieut.
Lodi	Owens, Lloyd L.	Lieut.
Long Beach	Boyer, Earl F.	Lt. Cmdr.
Patterson	Allen, Ernest W.	Lieut.
San Francisco	Booth, James M.	Lieut.
San Francisco	Gilman, Ward K.	Lieut.
San Francisco	Schroeder, Harold W.	Lieut.
Tulare	Hess, Richard A.	Lieut.
Colorado		
Salida	Schneider, Leo	Lieut.
Connecticut		
Waterbury	Engelman, Melvin A.	Lieut.
Georgia		
Atlanta	Gilliland, Travis E.	Lieut.
Atlanta	Stone, William D.	Lieut.
Gordon	Lee, Daniel F.	Lieut.
Waynesboro	Cooley, Joe D., Jr.	Lieut.
Hawaii		
Wailuku	Wong, Paul L.	Lieut.
Illinois		
Berwyn	Tetrev, Henry	Lt. Cmdr.
Berwyn	Zuley, Burton W.	Lt. Cmdr.
Chicago	Freitag, Henry W.	Lieut.
Chicago	Kryda, John F.	Lieut.
Chicago	Lipton, Sherman P.	Lieut.
Chicago	Miller, Lester J.	Lieut.
Chicago	Robbins, H. D.	Lt. Cmdr.
Chicago	Scislowicz, Matt J.	Lieut.
Chicago	Sochowski, R. T.	Lieut.
Cicero	Szmyd, Milton A.	Lieut.
Evanston	Jans, Robert B.	Lieut.
Indiana		
Angola	Aldrich, Wendell R.	Lieut.
Indianapolis	Jefferis, Loren W.	Lieut.
Mishawaka	Makielski, Robert A.	Lieut.
Iowa		
Iowa City	Opheim, Robert E.	Lieut.
Kansas		
St. Francis	Rueb, Alfred O.	Lieut.
Kentucky		
Stearns	Thomas, Frank C.	Lieut.
Louisiana		
New Orleans	Mumme, H. T., Jr.	Lieut.
New Orleans	Simmons, John W.	Lieut.
Maryland		
Cumberland	Huth, Ralph L.	Cmdr.
Linthicum Heights	Gaver, Oren H., Jr.	Lieut.
Massachusetts		
Dedham	Pendergast, W. J.	Lieut.
Indian Orchard	Bacevicz, Frank J.	Lieut.
Lowell	Belkakis, E. Charles	Lieut.
Michigan		
Grand Haven	Hoek, Robert B.	Lieut.
West Branch	Shortt, Lee A.	Lieut.
Minnesota		
St. Paul	Karlson, Lennart E.	Lieut.
Mississippi		
Meridian	Ray, William Z.	Lieut.
Missouri		
Kansas City	Bachman, V. Y.	Lt. Cmdr.
New Jersey		
Bloomfield	Papera, Fiore A.	Lieut.
Millburn	Browe, Curtis R.	Lieut.
Paterson	Landau, Richard H.	Lieut.
Paterson	Sutton, Robert L.	Lieut.
New Mexico		
Artesia	Ruppert, Gerald P.	Lieut.
New York		
Brooklyn	Levy, Jack L.	Lieut.
Glendale	Schnappauf, A. M.	Lieut.
Long Island	Ciliberti, Gerard F.	Lieut.
Long Island	Zweibach, Milton J.	Lieut.
New York	Sachs, Julian S.	Lieut.
Queens Village	Hillis, Walter G.	Lieut.
Tarrytown	Cole, Robert M.	Lieut.
Ohio		
Columbus	Cole, Harvey J.	Lt. Cmdr.
Massillon	Deegan, Robert T.	Lieut.
Steubenville	Baird, William E.	Lieut.

DEATHS

O'Connor, Edward A., Portage, Pa.; Baltimore College of Dental Surgery, 1910; died January 22; aged 66.

Owen, L. R., Akron, Ohio; died December 22; aged 53.

Paradis, G. E., Suncook, N. H.; Dental School, Tufts College, 1943; died January 24; aged 29.

Paradis, J. E., Manchester, N. H.; Dental School, Tufts College, 1915; died January 31; aged 56.

Parker, William L., Jackson, Miss.; School of Dentistry, Vanderbilt University, 1891; died December 28; aged 82.

Pattison, Nelson M., New York; New York College of Dentistry, 1890; died January 11; aged 76.

Pettebone, H. G., Wilkes-Barre, Pa.; Thomas W. Evans Museum and Dental Institute of Dentistry, University of Pennsylvania, 1904; died January 2.

Plant, Louis E., Winsted, Conn.; School of Dentistry, Temple University, 1895; died December 22; aged 83.

Pottinger, Simeon H. R., New York; College of Dental and Oral Surgery of New York, 1917; died December 27; aged 65.

Price, Robert N., Chicago; Chicago College of Dental Surgery, 1913; died December 19; aged 57.

Provost, William D., Brooklyn; New York College of Dentistry, 1891; died December 20; aged 77.

Quisenberry, Harry M., Lexington, Va.; Dental Department, College of Medicine, University of Virginia, 1907; died January 16; aged 70.

Repass, Grover C., Anderson, Ind.; School of Dentistry, Indiana University, 1908; died January 24; aged 62.

Reuter, John L., Hobart, Ind.; Chicago College of Dental Surgery, Dental Department of Loyola University, 1903; died January 1; aged 86.

Ropp, Sam P., Knoxville, Tenn.; Cincinnati College of Dental Surgery, 1913; died December 26.

Rudolph, Russell, Kittanning, Pa.; Medico-Chirurgical College of Philadelphia, 1904; died January 3; aged 70.

Russell, R. Dale, Clarinda, Iowa; Chicago College of Dental Surgery, Dental Department of Loyola University, 1907; died January 10; aged 68.

Simpson, George F., Purcellville, Va.; died December 24.

Simpson, Norman, Kokomo, Ind.; School of Dentistry, Indiana University, 1897; died January 10; aged 75.

Smith, Howard A., Niagara Falls, N. Y.; died January 24; aged 69.

Sohm, Albert H., Quincy, Ill.; School of Dentistry, Washington University, 1904; died December 27; aged 64.

Sollock, Daniel L., Tahlequah, Okla.; died January 13; aged 61.

Soper, Clarence I., Chicago; died December 22; aged 58.

Stewart, Elbert, Little Rock, Ark.; College of Dentistry, University of Tennessee, 1902; died December 24; aged 70.

Stowitts, Howard A., Los Angeles; died January 22; aged 42.

Taft, D. E., Woodhull, Ill.; College of Dentistry, University of Illinois, 1902; died January 13; aged 59.

Tauber, John A., Catlettsburg, Ky.; died December 16; aged 72.

Taylor, F. G., Elkhorn, Wis.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1895; died January 16; aged 70.

Templeton, Leo A., Creston, Iowa; Dental School, Northwestern University, 1914; died December 3; aged 58.

Thompson, Claude L., West Point, Nebr.; College of Dentistry, University of Nebraska, 1919; died January 10; aged 53.

Tipton, John A., Jr., Keysville, Va.; School of Dentistry, Medical College of Virginia, 1923; died January 19; aged 47.

Tozier, Charles H., Winchester, Mass.; died January 1; aged 71.

Wallace, Bert L., Marion, Ohio; College of Dentistry, Ohio Medical University, 1897; died December 5; aged 71.

Walsh, John R., Cleveland; Cincinnati College of Dental Surgery, 1913; died January 15; aged 41.

Ward, Forrest W., Youngstown, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1910; died January 9; aged 60.

Webert, James F., Wausau, Wis.; died January 16; aged 28.

Webster, Douglas B., Newville, Pa.; Medico-Chirurgical College of Philadelphia, 1907; died December 19; aged 62.

Whitbeck, Theodore H., Catskill, N. Y.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1891; died January 10; aged 77.

DIRECTORY

Officers

Sterling V. Mead, President.....1149-16th St., N. W., Washington, D. C.
H. B. Washburn, President-Elect.....488 Lowry Bldg., St. Paul, Minn.
E. B. Penn, First Vice-President.....901 Huntington Bldg., Miami, Fla.
B. B. McCollum, Second Vice-President.....1052 W. Sixth St., Los Angeles, Calif.
M. D. Huff, Third Vice-President.....1204 Medical Arts Bldg., Atlanta, Ga.
Harold Hillenbrand, Secretary.....222 E. Superior St., Chicago, Ill.
R. H. Volland, Treasurer.....First National Bank Bldg., Iowa City, Iowa

Board of Trustees

J. B. Carr, 1949, Seventh District.....907 Hume Mansur Bldg., Indianapolis, Ind.
C. S. Foster, 1949, Tenth District.....803 Dows Bldg., Cedar Rapids, Iowa
Robert P. Thomas, 1949, Sixth District.....720 Francis Bldg., Louisville, Ky.
Henry Hicks, 1949, First District.....5 Glen Court, Greenwich, Conn.
William McGill Burns, 1948, Second District.....80 Hanson Place, Brooklyn, N. Y.
Willard Ogle, 1948, Twelfth District.....313 Medical Arts Bldg., Dallas, Texas
Fred S. Shandley, 1948, Eleventh District.....1327 Medical & Dental Bldg., Seattle, Wash.
R. C. Dalgleish, 1948, Thirteenth District.....124 State Capitol, Salt Lake City, Utah
LeRoy M. Ennis, 1947, Third District.....4001 Spruce St., Philadelphia, Pa.
Harold W. Oppice, 1947, Eighth District.....1002 W. Wilson Ave., Chicago, Ill.
C. J. Wright, 1947, Ninth District.....American State Bank Bldg., Lansing, Mich.
Edward J. Jennings, 1947, Fourth District.....126 W. State St., Trenton, N. J.
Clyde E. Minges, 1947, Fifth District.....Peoples Bank Bldg., Rocky Mount, N. C.

Bureaus

Chemistry: Donald A. Wallace, Director, and J. Roy Doty, Associate Chemist, 222 E. Superior St., Chicago, Ill.

Library and Indexing Service: Josephine P. Hunt, Librarian, and Martha A. Mann, Indexer, 222 E. Superior St., Chicago, Ill.

Press Relations: Herbert B. Bain, Director, 222 E. Superior St., Chicago, Ill.

Public Relations: Lon W. Morrey, Director, 222 E. Superior St., Chicago, Ill.

Section Chairmen

Dentistry for Children and Oral Hygiene: Kenneth A. Easlick, University of Michigan, Ann Arbor, Mich.

Full Denture Prosthesis: W. W. Hurst, 2165 Adelbert Road, Cleveland, Ohio.

Histology, Physiology, Pathology, Bacteriology and Chemistry (Research): Hermann Becks, University of California, San Francisco, Calif.

Hospital Dental Service: W. Harry Archer, 804 Professional Bldg., Pittsburgh, Pa.

Operative Dentistry, Materia Medica and Therapeutics: J. Bernard Hutcherson, Starks Bldg., Louisville, Ky.

Oral Surgery, Exodontia and Anesthesia: George W. Christiansen, David Whitney Bldg., Detroit, Mich.

Orthodontics: L. B. Higley, 705 S. Summit St., Iowa City, Iowa.

Partial Denture Prosthesis: Oliver C. Applegate, 216 S. State St., Ann Arbor, Mich.

Periodontia: Hunter S. Allen, Comer Bldg., Birmingham, Ala.

Practice Management: Gaylord J. James, 9400 Euclid Ave., Cleveland, Ohio.

Radiology: H. C. Fixott, Medical-Dental Bldg., Portland, Ore.

Standing Committees

American Red Cross: George A. Coleman, Chm., 15th and Locust Sts., Philadelphia, Pa.

Constitutional and Administrative Bylaws: Percy T. Phillips, Chm., 18 E. 48th St., New York, N. Y.

Dental Education: J. Ben Robinson, Chm., 42 S. Greene St., Baltimore, Md.; Harlan H. Horner, Secy., and Shailer Peterson, Director of Educational Measurements, 222 E. Superior St., Chicago, Ill.

Dental Health: Hugo M. Kulstad, Chm., 218 First National Bank Bldg., Pomona, Calif.; Allen O. Gruebbel, Secy., 222 E. Superior St., Chicago, Ill.
Dental Legislation: Carl O. Flagstad, Chm., 1549 Medical Arts Bldg., Minneapolis, Minn.; George H. Fox, Secy., 222 E. Superior St., Chicago, Ill.
Dental Museum: Henry A. Swanson, Chm., 1726 Eye St., N. W., Washington, D. C.
Dental Therapeutics: Harold S. Smith, Chm., 6 N. Michigan Ave., Chicago, Ill.; Donald A. Wallace, Secy., 222 E. Superior St., Chicago, Ill.
Economics: Leslie M. FitzGerald, Chm., Roshek Bldg., Dubuque, Iowa; J. E. Bagdonas, Secy., 222 E. Superior St., Chicago, Ill.
History: Harold L. Faggart, Chm., 2120 Pine St., Philadelphia, Pa.
Insurance: A. D. Weakley, Chm., 1726 Eye St., N. W., Washington, D. C.; Fred A. Richmond, Secy., Huron Bldg., Kansas City, Kan.
International Relations: Daniel F. Lynch, Chm., 1678 Primrose Road, N.W., Washington, D. C.
Judicial Council: Ernest G. Sloman, Chm., 344-14th St., San Francisco, Calif.
Library and Indexing Service: John E. Gurley, Chm., 350 Post St., San Francisco, Calif.
Membership: Paul W. Zillmann, Chm., 29 Walden Ave., Buffalo, N. Y.
Motion Pictures: Cecil C. Connelly, Chm., 4660 Maryland Ave., St. Louis, Mo.
National Board of Dental Examiners: James V. Gentilly, Chm., 724 Rose Bldg., Cleveland, Ohio; Gordon L. Teall, Secy., Hiawatha, Kan.
Nomenclature: Harry Lyons, Chm., Professional Bldg., Richmond, Va.
Patents and Honorary Awards: M. D. K. Bremner, Chm., 173 W. Madison St., Chicago, Ill.
Relief: John S. Owens, Chm., 407 Cooper St., Camden, N. J.; Earl E. Graham, Secy., 58 E. Washington St., Chicago, Ill.
Research: M. D. Huff, Chm., 1204 Medical Arts Bldg., Atlanta, Ga.; Daniel F. Lynch, Secy., 1678 Primrose Road, N.W., Washington, D. C.
Scientific and Health Exhibits: Leo F. Marré, Chm., Paul Brown Bldg., St. Louis, Mo.; Lon W. Morrey, Secy., 222 E. Superior St., Chicago, Ill.

Special Committees

Dental and Medical Relations: C. Raymond Wells, Chm., 1 DeKalb Ave., Brooklyn, N. Y.
Gorgas Memorial: Russell W. Bunting, Chm., 916 Church St., Ann Arbor, Mich.
Horace Wells Centenary: Eugene M. Clifford, Chm., 57 Pratt St., Hartford, Conn.
Hospital Dental Service: W. Harry Archer, Chm., 804 Professional Bldg., Pittsburgh, Pa.
Military Affairs: Olin Kirkland, Chm., Shepherd Bldg., Montgomery, Ala.
Prosthetic Dental Service: H. O. Lineberger, Chm., 804 Professional Bldg., Raleigh, N. C.; Carl O. Boucher, Secy., 317 Beggs Bldg., Columbus, Ohio.
Trade Relations: Frank J. Hurlstone, Chm., 30 N. Michigan Ave., Chicago, Ill.
War Memorial: L. H. Renfrow, Chm., Selective Service, 21st and C Sts., N.W., Washington, D.C.
William T. G. Morton Centenary: Kurt H. Thoma, Chm., 53 Bay State Road, Boston, Mass.
Woman's Auxiliary: Stella Risser, Medical Arts Bldg., Houston, Texas.

THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION
222 East Superior Street, Chicago 11, Illinois
Telephone WHItehall 6730 Cable Address: ADAECO

Lon W. Morrey, Editor **John J. Hollister, Business Manager**

All expressions of opinions and all statements of supposed facts are published on the authority of the writer over whose signature they appear, and are not to be regarded as expressing the views of the American Dental Association, unless such statements or opinions have been adopted by the Association. *Articles* are accepted with the understanding that they have not been published previously and that they are submitted solely to THE JOURNAL. *Advertising:* All products coming within the scope of the Council on Dental Therapeutics of the American Dental Association must be acceptable to the Council in order to be advertised in THE JOURNAL. *Subscription* is included in the annual membership dues of the American Dental Association. The subscription rate for nonmembers is $7 a year in advance for domestic subscriptions and $8 a year for foreign subscriptions. *Notice of change of address* should be received one month before the change is to be effective.

ANNOUNCEMENTS

MEETINGS OF STATE SOCIETIES

State	Date	Place	Secretary	Address
Alabama	April 8–10	Birmingham	G. W. Matthews	1922 Tenth Ave., S., Birmingham 5
Arizona	May 1–3	Tucson	B. K. Litt	68 E. Congress, Tucson
Arkansas	May 19–21	Little Rock	I. M. Sternberg	Merchants Bank Bldg., Ft. Smith
California	April 28–30	San Francisco	L. E. Linehan	450 Sutter St., San Francisco
S. California	Sept. 15–17	Los Angeles	R. L. Borland	903 Crenshaw Blvd., Los Angeles 6
Colorado	May 25–28	Colorado Springs	R. A. Downs	724 Republic Bldg., Denver 2
Connecticut			E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware			J. Krygier	309 S. State St., Dover
D. of Columbia	June 10	Washington	K. H. Wood	202-1835 Eye St., N. W., Washington
Florida	Nov. 10–12	St. Petersburg	J. I. Todd	433 St. James Bldg., Jacksonville
Georgia			J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii	October	Honolulu	J. H. Dawe	P. O. Box 39, Honolulu 10
Idaho	June 9–11	Sun Valley	H. F. Miller	Moscow
Illinois	Oct. 9–11	Peoria	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana	May 19–21	Indianapolis	E. E. Ewbank	Kingman
Iowa	May 6–8	Des Moines	A. N. Humiston	417 Higley Bldg., Cedar Rapids
Kansas	May 12–15	Kansas City, Mo.	F. A. Richmond	1008 Huron Bldg., Kansas City
Kentucky	March 31–April 2	Louisville	J. L. Walker	640 Barbee Way, S., Louisville
Louisiana	April 10–12	New Orleans	J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine	June 5–7	Poland Springs	A. H. Garcelon	State House, Augusta
Maryland	April 28–30	Baltimore	J. H. Shackelford	706 Baltimore Life Bldg., Baltimore 1
Massachusetts	May 5–8	Boston	P. E. Adams	106 Marlborough St., Boston
Michigan	April 14–16	Detroit	F. Wertheimer	Michigan Department of Health, Lansing
Minnesota			L. M. Cruttenden	Lowry Medical Arts Bldg., St. Paul
Mississippi	June 1–4	Biloxi	O. L. Colee	Magnolia
Missouri	May 12–15	Kansas City	C. W. Digges	Exchange National Bank Bldg., Columbia
Montana	May 1–3	Missoula	C. S. Renouard	305 Phoenix Bldg., Butte
Nebraska	May 12–14	Lincoln	F. A. Pierson	Federal Securities Bldg., Lincoln
Nevada	May 12–13	Las Vegas	L. G. Jacob	505 Chestnut St., Reno
New Hampshire	June 15–17	Portsmouth	F. E. Williams	814 Elm St., Manchester
New Jersey	April 27–30	Atlantic City	J. G. Carr	407 Cooper St., Camden
New Mexico	May 26–28	Santa Fe	J. S. Eilar	First National Bank Bldg., Albuquerque
New York	May 13–16	Buffalo	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina	May 4–7	Pinehurst	C. W. Sanders	Benson
North Dakota	May 12–14	Grand Forks	K. G. Allen	Fargo
Ohio	Nov. 9–12	Cleveland	E. G. Jones	185 E. State St., Columbus
Oklahoma	April 13–16	Oklahoma City	E. W. Wise	Medical Arts Bldg., Tulsa
Oregon	June 5–7	Portland	W. H. Hurley	922 Selling Bldg., Portland 5
Panama Canal Z.			T. W. Cagle	Box 243, Cocoli
Pennsylvania	May 6–8	Philadelphia	E. R. Aston	421 Market St., Kingston
Philippine I.			G. A. Carreon	9 Broadway, Third St., N. Manila
Puerto Rico			R. Miranda	Box 747, Rio Piedras
Rhode Island			M. B. Messore	707 Union Trust Bldg., Providence
South Carolina	April 27-29	Myrtle Beach	J. R. Owings	Greenville
South Dakota	May 29-31	Black Hills	E. W. Elmen	Sioux Falls
Tennessee	May 12–15	Nashville	E. J. Justis	Exchange Bldg., Memphis
Texas	April 28–May 1	San Antonio	W. Ogle	313 Medical Arts Bldg., Dallas
Utah	June 5–7	Ogden	S. Ballinger	401 Medical Arts Bldg., Salt Lake City
Vermont	May 25–27	Woodstock	J. A. Larrow	Middlebury
Virginia	April 14–16	Roanoke	J. E. John	804 Medical Arts Bldg., Roanoke
Washington	May 5–7	Spokane	F. J. Dingler	1502 Medical and Dental Bldg., Seattle 1
West Virginia	May 19–21	Bluefield	C. J. Gavelda	Clarksburg
Wisconsin	March 31–April 2	Milwaukee	K. F. Crane	1233 Bankers Bldg., Milwaukee 2
Wyoming	June 12–14	Casper	J. D. McNiff	208 Grand Ave., Laramie

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary	Address
Alabama	June 23–27	Birmingham	M. W. Gaillard	Merchants Bank Bldg., Mobile
Arizona	June 25–28	Phoenix	R. K. Trueblood	25 North Second Ave., Glendale
Arkansas	June 23	Little Rock	H. E. Hanna	National Bank of Commerce Bldg., El Dorado
California	June 16	Los Angeles	K. I. Nesbitt	515 Van Ness Ave., San Francisco 2
Colorado	June 15–19	Denver	E. G. Netherton	724 Republic Bldg., Denver 2
Florida	June 30–July 3	Jacksonville	A. W. Kellner	P. O. Box 155, Hollywood
Indiana	June 16–19	Indianapolis	C. A. Frech	Gary National Bank Bldg., Gary
Iowa	March 17–22	Iowa City	H. G. Bolks	923 Badgerow Bldg., Sioux City
Kansas	June 2–5	Kansas City, Mo.	G. L. Teall	Box 71, Hiawatha
Minnesota	June 16–21	Minneapolis	E. E. Comartin	334-336, 100 First Avenue Bldg., Rochester
Mississippi	June 17–19	Jackson	W. R. Madden	Forest
New Mexico	April 2–5	Santa Fe	J. J. Clarke	Artesia
North Carolina	June 23	Raleigh	F. O. Alford	Charlotte
Ohio	June 16–21*	Cleveland	E. D. Lowry	79 E. State St., Columbus
South Carolina	July 7	Columbia	E. G. Bumgardner	1517 Hampton St., Columbia 29
Tennessee	June 9–13	Memphis	J. J. Vaughn	1001 Medical Arts Bldg., Nashville
Vermont	June 23–25	Montpelier	C. I. Taggart	139 Bank St., Burlington
West Virginia	June 23–26	West Liberty	R. H. Davis	510 Goff Bldg., Clarksburg

*Practical, June 16–18 (dental); June 17 (hygienists). Theory, June 19–21.

OTHER MEETINGS

Name	Date	City	Secy. or Chm.	Address
American Academy of Cleft Palate Prosthesis	March 26	Philadelphia	J. B. Price Secy.	6013 Green St., Philadelphia 44
American Association of Dental Schools	June 23–25	Chicago	J. E. Buhler Secy.	School of Dentistry, Temple University, Philadelphia 30
American Association of Orthodontists, Central Section	April 14–15	Minneapolis	C. R. Baker Chm.	636 Church St., Evanston, Ill.
American Dental Association	Aug. 4–8	Boston	H. Hillenbrand Secy.	222 E. Superior St., Chicago
American Dental Hygienists' Association	Aug. 4–8	Boston	A. R. Fisk Secy.	1704 N. Troy St., Arlington, Va.
American Dental Society of Europe	August 1948	London	K. C. Campbell Secy.	88 Portland Place, London, W. 1.
American Society for the Advancement of General Anesthesia in Dentistry	March 24	New York	M. H. Feldman Ex. Secy.	730 Fifth Ave., New York
Cleveland Dental Society, Annual Spring Clinic Meeting	May 5–7	Cleveland	W. J. Benson Publicity Chm.	Keith Bldg., Cleveland
National Board of Dental Examiners	April 21–22*		G. L. Teall Secy.	Box 71, Hiawatha, Kan.
National Council on Rehabilitation	April 29–30	St. Louis	C. S. Truax Ex. Secy.	1790 Broadway, New York 19
Ontario Dental Association, Eightieth Meeting	May 19–21	Toronto	H. R. Skilling Publicity Chm.	86 Bloor St., West Toronto 5, Ont., Canada
Northwest Conference in Dental Medicine	May 18–21	Harrison Hot Springs, B. C.	C. R. Hallman Secy.	4298 Dunbar St., Vancouver, B. C., Canada
Thomas P. Hinman Mid-Winter Clinic	March 23–25	Atlanta	S. A. Garrett	Medical Arts Bldg., Atlanta, Ga.
Illinois Public Health Association	April 18	Springfield	W. H. Tucker, Program Chm.	1806 Maple, Evanston, Ill.
Academy of Denture Prosthetics	July 28–Aug. 3	Boston	I. L. Furnas Secy.	928 Silverado St., La Jolla, Calif.

*Examinations will be held in schools where there are five or more candidates.

INTERNSHIPS, EXTERNSHIPS, RESIDENCIES AND FELLOWSHIPS

The Children's and Infants' Hospital (a Unit) of Boston. Address Paul K. Losch, 300 Longwood Ave., Boston.

The Children's Memorial Hospital, Chicago. Administrator, Mabel W. Binner, 707 Fullerton Ave., Chicago.

Columbia University, School of Dental and Oral Surgery. Associate Dean, Bion R. East, 630 W. 168th St., New York 32.

Eastman Dental Dispensary, Rochester, N. Y.

Fellowships for Research and Graduate Work in the Dental Sciences, University of Rochester. Dean, George H. Whipple.

The Forsyth Dental Infirmary for Children. Director, 140 The Fenway, Boston 15.

International Grenfell Association. Staff Selection Committee, 156 Fifth Ave., New York.

Jewish Sanitarium and Hospital for Chronic Diseases. Director, Leonard Kohn, Dental Division, E. Forty-Ninth St. and Rutland Road, Brooklyn 3, N. Y.

Joseph Samuels Dental Clinic of the Rhode Island Hospital, Providence. Director, Ernest A. Charbonnel.

Notre Dame Bay Memorial Hospital, Twillingate, Newfoundland. Address John M. Konopka, 25 W. Independence St. Shamokin, Pa.

Richmond Freeman Memorial Clinic for Infants and Children, Dallas, Texas. Executive Director, Dora B. Foster, 3617 Maple Ave., Dallas.

University of Illinois, Graduate School. Secretary, Committee on Graduate Work in Medicine, Dentistry and Pharmacy 1853 W. Polk St., Chicago 12.

University of Illinois, College of Dentistry. Isaac Schour, College of Dentistry, University of Illinois, 808 S. Wood St., Chicago 12.

University of Oregon, Medical School, Portland. Administrator, Charles N. Holman, 3181 S. W. Marquam Hill Road Portland.

Walter G. Zoller Memorial Dental Clinic, University of Chicago. Director, J. R. Blayney, 950 E. Fifty-Ninth St., Chicago 37.